

# THE STATE OF THE REGION 2004

## Measuring Regional Progress

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# PREFACE

The Southern California Association of Governments (SCAG) is the largest regional planning organization in the nation. Since its formation four decades ago in 1965, SCAG has been working with local governments, public agencies and many other partners to develop a shared regional vision and to collaboratively resolve regional challenges.

Since 1998, SCAG has prepared the annual State of the Region Report. The SCAG region, also referred to as Southern California in this report, includes six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura) and 187 cities. The region has continued to grow and change and has faced many challenges. It has also increasingly been recognized for its national and global significance. For example, the SCAG region would rank 4th among the 50 states in the nation in total population and serves as the nation's leading gateway to Pacific Rim countries. It would also rank 10th among all national economies in the world.

[The State of the Region 2004](#) tracks Southern California's progress in achieving the goals in SCAG's Regional Comprehensive Plan

and Guide. It compares the performance of our region with that of other large U.S. metropolitan areas. The report is intended to assist policy makers, business and community leaders in understanding and assessing our region's position and progress.

The State of the Region 2004 also includes two guest essays from leading experts in the field, one on strategies to address regional growth and the other on air quality challenges. Though the report is organized by issue areas, such as economy, housing, transportation and the environment, it should be stressed that these regional issues are closely interrelated.

Preparation for the 2004 Report was guided by SCAG's Benchmarks Task Force, consisting of local elected officials and regional issue experts in Southern California. While this 2004 Report was prepared as a stand-alone document, readers will find it beneficial to also refer to previous State of the Region reports for more detailed background information. These reports have been posted on the SCAG website at [www.scag.ca.gov/publications](http://www.scag.ca.gov/publications).



# INTRODUCTION

## *“The Six Degrees of Regional Planning...”*

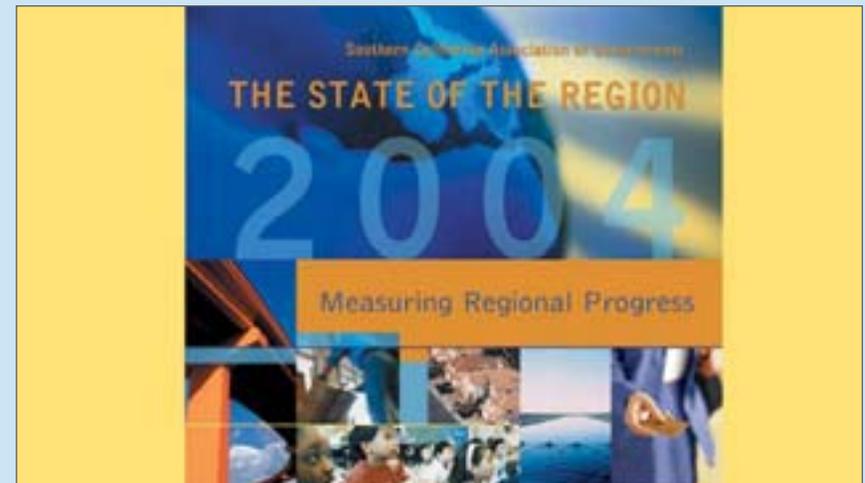
by Rick Bishop

In 1994, a group of college students, obviously with too much time on their hands, came up with a game they called “The Six Degrees of Kevin Bacon”. The game is based on the conceit of the John Guare play and movie adaptation “Six Degrees of Separation”. The game postulates that we are all connected by six or fewer stages of circumstance or acquaintance.

In substituting the word “Separation” with “Kevin Bacon,” the “Six Degrees of Kevin Bacon” founders hypothesized that Bacon might be the center of the universe, at least when connecting actors. The students discovered that if you use Bacon as an end point, you can link him in six degrees (steps) or less to almost any other performer. For instance, Kevin Bacon links to Kevin Costner in one swift link: Both were in the movie “JFK.” Julia Louis-Dreyfus of TV’s Seinfeld, however, takes all six steps to make a chain. She was in Christmas Vacation with Randy Quaid, who was in Major League II with Tom Berenger, who was in Shattered with Greta Scacchi, who was in Presumed Innocent with Harrison Ford, who was in Raiders of the Lost Ark with Karen Allen, who was in Animal House with – guess who – Kevin Bacon.

In a strange but related way, so it is with SCAG’s annual “State of the Region” report, which has been published each year since 1998. Crammed with a plethora of information regarding a variety of topics ranging from economy to employment to housing to crime to education to air quality, there is at least something in each and every report to catch the eye of folks interested in these issues. But reviewing the report is often a cursory exercise, with focused attention to any individual section paid only by those whose job is related to that specific component. Rarely is much time given to reading about performance in those sectors that just “don’t affect me” or “have no real bearing on my profession or industry.”

But using “six degrees” logic, it’s not hard to illustrate that individual regional issues such as the ones presented in the State of the Region report are inextricably linked to one another, and that (*insert your particular topic of interest in the State of the Region report here*) is, in fact, the center of the



regional issues universe. And although the issues and accompanying discussion presented in the State of the Region report are segregated and compartmentalized, there should be no intention on behalf of the reader to view the report in the same manner. Instead, we should all seek to identify the inter-relationships between and among report categories, and look for what might appear to be unrelated discussions in the report to explain trends reported elsewhere. Sometimes you won't need many "degrees of separation" to find these linkages. Other times you'll need all six degrees, which lends credence to the notion of the inter-relatedness among the topics presented in this year's State of the Region. In the end, virtually any topic discussed in the report can really become the "most important in the universe" around which all other data are linked. Let's try it.

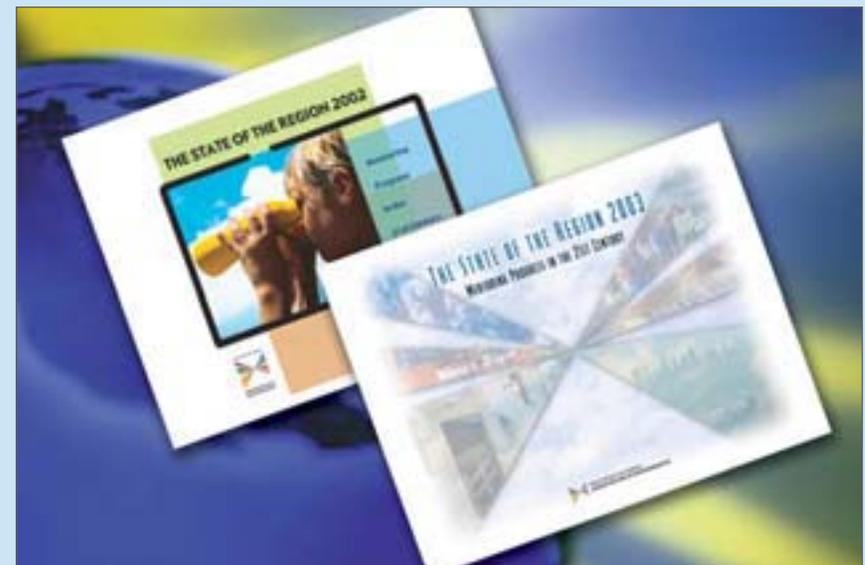
The region's real personal income per capita has continued a decline that started decades ago. Among the top 17 metropolitan areas in the United States, the SCAG region now ranks dead last in this category, trailing areas like Detroit, Cleveland, Houston, Sacramento, Miami, and Cincinnati. Disturbingly, in 1970 the SCAG region ranked 4th among the 17 regions in real personal income per capita, and was 7th as recently as 1990. Supporting data from the report iterates that nearly one in every six persons in the SCAG region lives in poverty, the highest poverty rate in the nation.

It's no surprise that this data leads to a **second degree of separation** – housing affordability. The State of the Region report discusses how Southern California is fast-becoming one of the least affordable housing markets in the state and nation. In the six-county region only about 1/3 of the region's households can now afford to purchase a median-priced home, which now stands at well above \$500,000 in Orange County and more than \$350,000 in Riverside County. With the region set to add approximately 6 million more residents by year 2025 in addition to the 17 million of us already here, it's a good thing that approximately 400,000 new homes were constructed during the 1990's, right? Well, maybe not, considering that in actuality 633,000 new homes were needed to accommodate the 1.9 million additional residents who settled here during that 10-year period. So the inability to provide enough new homes is a **third degree of separation**, a prominent contributor to the region's skyrocketing price of housing and related decline in housing affordability. In essence, the region's demand for housing is rapidly outstripping the supply, and home prices are increasing so rapidly that the affordability index continues to plummet. Coupled with the first degree of separation fact regarding the region's slide in real personal per capita income, a troubling picture of potential future home ownership – a key indicator of economic health in any region – supported by second and third degrees of separation emerges.

A **fourth degree of separation** might be found in noting that, to no one's real surprise, transit boardings have increased slightly in recent years in the SCAG region. On the surface, it appears to make sense that if the region's per capita income declines and rate of poverty grows, the discretion of persons to select a travel mode of choice might be limited. As a result transit becomes a favored – and often the only viable – means of travel for those who cannot afford to or desire not to prioritize the purchase, operation, and maintenance of an automobile. Thus, it makes sense that transit boardings in the region are on the increase.

But if more of us are riding transit, why has the region's air quality generally worsened during the last few years? Automobile emissions are the source of approximately 70% of the air pollution in Southern California; certainly, with the region's dramatic population increase come additional cars and trucks on the road. But a potential **fifth degree of separation** is revealed in the fact that older model vehicles – which comprise only about 10% of the region's cars and trucks but do not have modern emissions-regulating technologies and are exempt from smog-check programs – account for

approximately 90% of the vehicle emissions spewed into the region's atmosphere. Could it be that other cost considerations, such as those discussed above, are contributing to the regional population's inability and/or unwillingness to more quickly replace the aging, heavier polluting fleet of automobiles, and thus plays a major factor in region's recent air quality decline?



All this can lead to the center of this particular discussion's universe, and a **sixth degree of separation** as presented in the State of the Region report. Among the nine largest metropolitan regions in the United States, the SCAG region ranks last in the percentage of adults who have attained at least a high school diploma. Math and reading test scores among 8th graders have declined in most SCAG-area counties during the last year, and high school dropout rates increased in four of the six counties. Of those finishing high school, fewer are completing courses required for entrance to the University of California and California State University educational systems. Which leads to an interesting question: Will our future workforce have what it takes to help turn some of these trends around?

In reviewing the 2004 State of the Region report, take some extra time this year to look for clues provided in all of the report's categories that might help explain or influence those areas in the report that hold your particular interest. Chances are that your issue – the center of your universe – has many degrees of separation with other components discussed in this important regional document.

**Rick Bishop, Executive Director, Western Riverside Council of Governments (WRCOG)**

# EXECUTIVE SUMMARY

As documented in the State of the Region Reports in the past two years, the SCAG region lost significant ground during the 1990s, particularly in the areas of employment, income, educational attainment and housing affordability. During the same period, Southern California made significant progress in improving air quality and reducing violent crimes. This is based on the comparison of the SCAG region's performance with that of the other large metropolitan regions in the nation. However, during 2001 and 2002, Southern California generally performed a little better (or less worse) than the other large metropolitan regions in the area of employment and income.

The national recession in 2001 and the subsequent jobless recovery hit most other large metropolitan regions much harder than the SCAG region. Between 2000 and 2002, among the nine largest metropolitan regions in the nation, the SCAG and the Washington, D.C. regions were the only two that managed to increase their total payroll jobs. The San Francisco Bay Area and the New York region each lost a quarter million jobs during the two-year period. Though per capita income in Southern California declined for two consecutive years, losses were less severe than in most other large metropolitan regions.

Between 2000 and 2003, the region's population grew significantly faster than the rest of the state and the nation, adding almost 1 million residents. However, the inability to generate and attract more higher-paying jobs than those lost

(particularly in the durable manufacturing and information sectors) has led to stagnant incomes for households in the region. With continuing population growth, housing shortage, and a significant state budget shortfall during 2003, the region continued to struggle in areas such as housing affordability and mobility.

How the SCAG region performed in 2003 is the main focus of this State of the Region Report. Highlights of the Report are summarized as follows:

- In 2003, the SCAG region continued to grow significantly faster than the rest of the state and the nation, accounting for more than 10 percent of the total population growth in the nation. It also continued its demographic transformation.
- The region achieved a slight increase in total payroll jobs in 2003 while the rest of the nation and almost all other large metropolitan regions continued to suffer job decline. Since 2000, the region has outperformed the rest of the nation and other large metropolitan regions in job growth but with no improvement in household income.
- Housing construction activities were most active in 2003 since 1990, but housing and rental cost burdens continued to increase with sharp increases in home prices and rents. Housing availability and affordability remain serious challenges to the long-term economic growth of the region.

- The region continued to experience the highest level of congestion among the large metropolitan regions in the nation. There was a continuing decline of carpool share of home to work trips. In 2003, the region experienced a significant increase in highway accident fatalities.
  - Air quality worsened, particularly for ozone pollution partly due to weather conditions.
  - There were continuing improvements in reducing the rates of violent crimes and juvenile felony arrests. However, there was little improvement in student performance.
1. In 2003, the SCAG region continued to grow significantly faster than the rest of the state and the nation, accounting for more than 10 percent of the total population growth in the nation. It also continued its demographic transformation.

In the year 2003, the SCAG region continued its significant growth with an increase of almost 300,000 people, reaching over 17.7 million. Total growth in the region accounted for 56 percent of the growth in the state and 10 percent of the growth in the nation. Both the numerical increase and the growth rates decreased in the region for the past three years, similar to the trend for the rest of the state. However, since 1998, the region has continued to grow at faster rates than the rest of the state and the nation. In 2003, the top four California counties in total population increase were all in the SCAG region, including Los Angeles, Riverside, San Bernardino and Orange counties. In addition, Riverside County achieved the fastest growth rate in the state, 3.4 percent, while Imperial and San Bernardino counties had the 5th and 6th highest rates respectively.

As to the sources of population growth, 48 percent was due to natural increase, an estimated 41 percent from foreign-immigration, and 11 percent from domestic immigration. Overall, natural increase contributed much more significantly to the growth in the three coastal counties (Los Angeles, Orange and Ventura) than the three inland counties (Riverside, San Bernardino and Imperial) where net migration played a more important role. While net migration to the coastal counties (particularly Los Angeles) consisted primarily of recent foreign immigrants, net migration to the Inland Empire was primarily domestic migrants. Many domestic migrants to the Inland Empire migrated within the region (i.e. intra-regional migration), particularly from Los Angeles County.

The demographic transformation process in the region continued through 2003 particularly with respect to ethnic composition. Population increases in 2003 continued to be almost exclusively among Hispanics and Asians. During 2002 and 2003, the non-Hispanic White population share fell below half of the total for the first time in Orange and Riverside counties, joining Imperial, Los Angeles and San Bernardino counties.



Finally, the median age of the population in the region continued to rise, though at a slower pace than the rest of the nation.

2. The region achieved a slight increase in total payroll jobs in 2003 while the rest of the nation and almost all other large metropolitan regions continued to suffer job decline. Since 2000, the region has outperformed the rest of the nation and other large metropolitan regions in job growth but with no improvement in household income.

In 2003, the regional employment picture showed slight improvement over the previous year. After losing 21,000 jobs (or 0.3 percent) in 2002, total wage and salary jobs in the region increased by 14,000 (or 0.2 percent) during 2003. While the region experienced a slight increase, the rest of the state and the nation and most other large metropolitan regions continued to suffer job decline since 2001. Between 2000 and 2003, the SCAG region performed better each year in job growth rates relative to the rest of the state, the nation and other large metropolitan regions.

Only four sectors suffered job losses in 2003 including manufacturing, information, transportation, and government. The total loss of about 71,000 jobs in these four sectors was offset by the gain of 85,000 jobs in eight other sectors, particularly in financial, hospitality, construction and health care. Due to a significant state budget shortfall, the government sector's performance reversed from the leading job generator of more than 25,000 in 2002 to a loss of almost 10,000 in 2003.

In 2003, the unemployment rate in the region at 6.2 percent was slightly higher than the national average of 6 percent but lower than the state average of 6.7 percent. Since 1992, the unemployment rate gap between the region and the nation has continuously narrowed. In 2003, the 0.2 percent unemployment rate gap between the region and the nation was the smallest since 1990.

In 2002, the average payroll per job in the region decreased by 0.7 percent from the previous year after adjusting for inflation, following a decline of 0.3 percent in 2001. Based on 2003 preliminary payroll data, sectors with significant job losses in the region, such as manufacturing and information, had higher than average payrolls per job. Hence, average payroll per job in the region was likely to continue to decline in 2003. Since 1992, the average payroll per job in the SCAG region has been declining relative to the average of the 17 largest metropolitan regions. In 2002, the SCAG region's average payroll per job was 91 percent of the average of the 17 largest metropolitan regions, almost the same as the level in 2001.

In 2002 (the most current data available), the region's real personal income per capita (with inflation adjustment) declined by 1.3 percent from 2001. The decline of the real per capita income in the region in 2002 was significantly higher than the 0.2 percent loss in the nation. Nevertheless, the region performed a little better than the average of the nine major metropolitan regions in the nation (-1.8%) and the state average (-2.1%), both of which were impacted by the performance of the San Francisco Bay Area with a 4.4 percent loss in real per capita income. With an improved job market, the region's real personal income per capita in 2003 should



stay at least at its 2002 level following that of the nation and the state.<sup>1</sup> In 2002, per capita personal income in the SCAG region was 85 percent of the average of the 17 largest metropolitan regions, a slight improvement from the previous year. Recent Census surveys indicated that the region experienced no growth in median household income between 2000 and 2003. During the last two decades, the region generally had a slightly higher income inequality than the nation when comparing the household income ratios.

Almost 15 percent of residents in the region lived in poverty in 2003, continuing to be significantly higher than the state and the nation. This was about a 1 percent increase since two years ago. In addition, more than 20 percent of children under 18 lived in poverty in 2003, a 1.7 percent increase since 2001. The region continued to have the highest poverty rate among the nine largest metropolitan regions in the nation.

3. Housing construction activities were most active in 2003 since 1990, but housing and rental cost burdens continued

to increase with sharp increases in home prices and rents. Housing availability and affordability remain serious challenges to the long-term economic growth of the region.

In 2003, the region experienced the largest number of residential building permits issued (78,300 units) as well as the largest increase (10,000 units or 15 percent) in a one year period since 1989. Total valuation of the permits in 2003 reached over \$15.5 billion, the largest annual increase of \$2.3 billion (or 17 percent) since 1987. Despite the continuous increase of permit activities in the past three years, housing construction continued to lag behind population growth. For example, between 2000 and 2003, population in the region increased by almost 1 million. However, during the same period, just over 200,000 building permits were issued. Within the region, there continued to be significant differences between the coastal and inland counties with respect to the share of multi-family housing permits.

While homeownership rates in 2003 increased at both the national and state level, they remained unchanged in the SCAG region. Nationally, the homeownership rate increased slightly from 67.9 percent in 2002 to 68.3 percent in 2003. The homeownership rate in California increased from 57.7 percent to 58.9 percent during the same period. In the SCAG region, however, homeownership rate in 2003 remained at about 55 percent.

Continuing sharp increases during 2003 in home prices and lack of growth in household incomes offset gains from lower interest rates, making housing less affordable. Since 2000, there has been a lack of growth in median household income in the region. However, average home prices in the region continued to reach new highs in 2003 in almost every county.

Between 2001 and 2003, average home prices increased by 25 to 30 percent across the region. In 2003, close to 43 percent of owner households (with a mortgage) in the region had monthly housing costs at or greater than 30 percent of their household incomes, an increase from 39 percent in 2000. With no growth in household income and continuing rent increase, rental cost burden has continued to rise. Among the approximately 8 million renters in the region in 2003, more than 4.2 million renters (or 53 percent) spent 30 percent or more of their income on rent. Among the nine largest metropolitan regions in the nation, the SCAG region continued to have the highest percentage of owner and rental households with monthly housing costs at or greater than 30 percent of household income.

4. The region continued to experience the highest level of congestion among the large metropolitan regions in the nation. There was a continuing decline of carpool share of home to work trips. In 2003, the region experienced a significant increase in highway accident fatalities.

Travelers in Los Angeles/Orange counties during the peak period in 2002 experienced a total of 93 hours of delay per person, again the highest among the major metropolitan areas in the nation. Travelers in Riverside/San Bernardino counties experienced a total of 57 hours of delay, the 5th highest among the major metropolitan areas. Though Los Angeles and Orange counties had the highest congestion level, their level of congestion experienced little increase between 1992 and 2002, while other metropolitan areas experienced much larger increases in their congestion levels.

During the fiscal year ending June 30, 2003, total transit boardings in the region reached almost 660 million based on preliminary estimates. This represented a decline of 2 percent from the previous year. The decline did not include the effect of the Los Angeles County Metropolitan Transportation Authority (MTA) bus labor union strike, resulting in 35 days without transit service in late 2003. Transit trips per capita in the region declined slightly from 38 in 2002 to 37 in 2003, marginally higher than the 1990 level of 36 trips per capita.

Between 2000 and 2003, the average travel time to work remained almost unchanged in the region, state, and the nation. In 2003, the average travel time to work in the region at about 28 minutes continued to be higher than the state (27 minutes) and national (24 minutes) averages. From 2000 to 2003, there was a decrease in the carpooling share (-1.5 percent) and an increase in the share of drive-alone commuting (2 percent) in the region. This was similar to the trend at the national level though the magnitude of changes was a little larger in the region. Between 2000 and 2003, the region's share of public transit usage among work trips remained unchanged at 5 percent.

Between 2002 and 2003, highway fatalities increased significantly (8 percent) in the region while the rest of the nation experienced a slight decline of 1 percent. The total number of fatalities reached 1,815, the highest since 1995. The region's highway accident fatality rate in 2003 was 1.2 persons per 100 million vehicle miles traveled, significantly higher than the national average (0.94 persons per 100 million vehicle miles traveled) for urban areas.

The highway fatality rate in the region in 2003 was also the highest since 1997.

5. Air quality worsened particularly for ozone pollution partly due to weather conditions.

In 2003, partly due to much hotter weather, ozone pollution worsened significantly in the South Coast Air Basin, with no major changes in the other three air basins in the region. In the most populous South Coast Air Basin, the number of days exceeding the federal one-hour ozone standard increased from 49 to 68 days from 2002 to 2003, more than any other air basin in the nation. This followed an increase from 36 to 49 days during the previous period. The number of days for health advisories in the South Coast Air Basin increased from 18 to 36 days from 2002 to 2003. It should be noted that, in the first 11 months in 2004, ozone pollution in the South Coast Air Basin improved significantly, exceeding the federal standard only 28 days.

As to  $PM_{10}$  pollution, both the South Coast and Salton Sea air basins continued to exceed the federal annual average standards in 2003. In addition, in 2003, the number of days exceeding the federal 24-hour standard (150ug/m<sup>3</sup>) for  $PM_{10}$  increased in all three non-attainment basins including the South Coast, Salton Sea and Mojave Desert. In 2003, the annual average of  $PM_{2.5}$  concentration was 24.9 ug/m<sup>3</sup> in the

South Coast Air Basin that decreased from the previous year (27.5 ug/m<sup>3</sup>), but continued to far exceed the federal standards of 15 ug/m<sup>3</sup>. Specifically, 12 of the 17 monitoring stations in the basin showed exceedance, ranging from coastal cities to inland valleys.

Finally, the South Coast Air Basin continued to have no violation for carbon monoxide in 2003.

6. There were continuing improvements in reducing the rates of violent crimes and juvenile felony arrests. However, there was little improvement in student performance.

Between 2002 and 2003, the violent crime rate in the region declined by almost 6 percent, larger than the 3 percent reduction between 2001 and 2002. However, the region continued to have a higher violent crime rate than the state as a whole. Within the region, reduction of the violent crime rate in 2003 was most significant in Riverside County (-8.6 percent) and Los Angeles County (-6.3 percent). When compared with other metropolitan areas, while Ventura and Orange counties experienced the lowest violent crime rates, Los Angeles County still had one of the highest.

From 2002 to 2003, there was a reduction of about 3 percent in the juvenile arrest rate in the region, compared to the 4 percent decrease at the state level.

Improvement was most significant in Ventura County with 14 percent reduction between 2002 and 2003 after an 11 percent decrease in the previous period. Both Riverside and San Bernardino counties had much higher juvenile felony arrest rates than Los Angeles in 2003, reversing the status of much lower rates than that of Los Angeles County only about a decade earlier. The number of hate crime events and victims in the region decreased by about 12 percent between 2002 and 2003, following a 30 percent reduction during the previous period.

In 2003, 8th graders (graduating class of middle schools) in the region continued to perform below the national median in reading and math test scores except in Orange and Ventura counties. Between 2002 and 2003, there were noticeable declines in reading scores throughout the region relative to the nation and no major changes in math scores.

Between 2002 and 2003, dropout rates for high schools increased significantly in Los Angeles and San Bernardino counties. African American and Hispanic high school students in the region, when compared with their White and Asian peers, had significantly higher dropout rates. As to the percentage of high schools graduates completing courses required for University of California (UC) or California State University (CSU) entrance, while Imperial County made noticeable progress, both Ventura and San Bernardino counties experienced lower performance in 2003. In 2003, there were slight improvements in educational attainment in the region following a similar trend at the national level. Among the nine largest metropolitan regions, the SCAG region remained in last place in the percentage of adults (76 percent) with at least a high school diploma, and second to last for at least a Bachelor's degree (27 percent).



# Population



# 2004

The region continued to grow significantly faster than the rest of the nation along with demographic transformation.

# Population

## Growth Characteristics

In the year 2003, the SCAG region continued its significant growth with an increase of almost 300,000 people, more than 10 percent of the total growth in the nation (Figure 1). By the end of 2003, total population in the region reached over 17.7 million, representing 6 percent of the population in the nation and close to half of the population in the state. Total population in the region continued to exceed the population in Florida, the fourth largest state in the nation. Notably, during 2003, population in Los Angeles County exceeded 10 million and in Orange County exceeded 3 million, the two most populous counties in the state.

Since 1990, annual population growth in the region has varied significantly (Figure 2). Between 1991 and 1994, population growth dropped consecutively from about 270,000 to only 80,000 mainly due to the sharp increase of net domestic outmigration caused by the severe recession.<sup>1</sup> Between 1994 and 2000, net domestic outmigration decreased continuously and in 2000 the region began to experience a small net domestic in-migration. Accordingly, population growth began to accelerate, increasing from about 80,000 in 1994 to 350,000 in 2000. Since 2000, population growth in the region has been slowing, decreasing from about 350,000 in 2000 to 300,000 in 2003. Nevertheless, the average annual growth of 325,000 between 2000 and 2003 was the highest in the region since 1950.

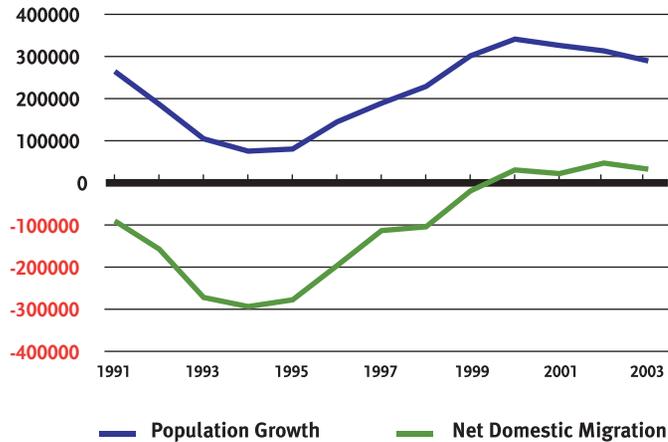
Figure 1  
Population Increase: 2002 and 2003 (000)

County	1/1/02	1/1/03	1/1/04	2002 Increase		2003 Increase	
				Number	Percent	Number	Percent
Imperial	150.2	152.6	156.6	2.4	1.6%	4.0	2.6%
Los Angeles	9,817.4	9,966.2	10,103.0	148.8	1.5%	136.8	1.4%
Orange	2,930.5	2,975.4	3,017.3	44.9	1.5%	41.9	1.4%
Riverside	1,645.3	1,719.0	1,776.7	73.7	4.5%	57.7	3.4%
San Bernardino	1,788.5	1,842.1	1,886.5	53.6	3.0%	44.4	2.4%
Ventura	778.4	791.6	802.4	13.2	1.7%	10.8	1.4%
<b>REGION</b>	<b>17,110.3</b>	<b>17,446.9</b>	<b>17,742.5</b>	<b>336.6</b>	<b>2.0%</b>	<b>295.6</b>	<b>1.7%</b>
Rest of California	17,889.7	18,165.1	18,401.5	275.4	1.5%	236.4	1.3%
California	35,000.0	35,612.0	36,144.0	612.0	1.7%	532.0	1.5%
U.S.	286,610.8	289,470.8	292,287.4	2,860.1	1.0%	2,816.6	1.0%

Source: California Department of Finance and U.S. Census Bureau annual January 1st estimates.



**Figure 2**  
Population Growth vs. Net Domestic Migration

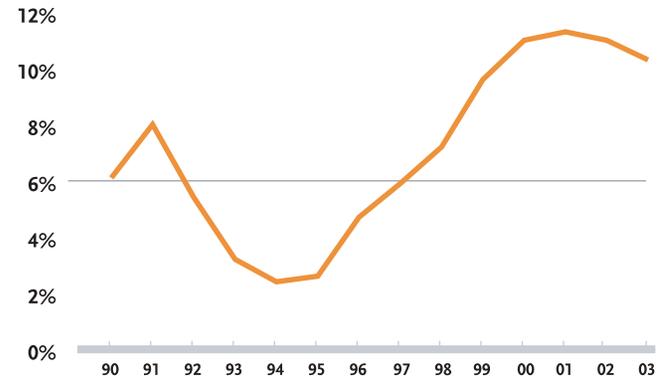


Source: California Department of Finance and SCAG

Between 1990 and 2003, because of the significant fluctuation of population growth in the region and relatively stable growth in the nation, the region's share of population growth in the nation also fluctuated widely. Specifically, the region's share of population growth in the nation dropped from about 8 percent in 1991 to only 2.5 percent in 1994 and increased to its peak of 11.5 percent in 2001 (Figure 3).

The region has continued to grow at faster rates than the rest of the state and the nation since 1998. For example, in 2003, the population growth rate at 1.7 percent in the region continued to be significantly higher than that of the rest of the state (1.3 percent) as well as the nation (just below 1 percent). Among the nine largest metropolitan regions, Southern California experienced the third highest growth rate following Dallas and Boston regions between 2000 and 2003 (see Figure 71 page 108).

**Figure 3**  
SCAG Region's Share of Population Growth in U.S.

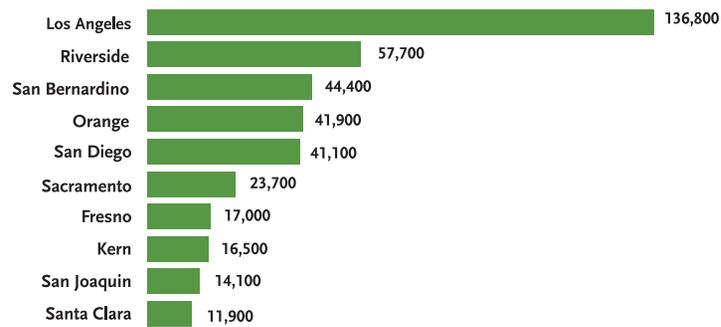


Source: California Department of Finance and U.S. Census Bureau

Between 1990 and 2003, the fertility rates (the average number of children per women of childbearing age) within the state have been declining across different racial/ethnic groups, particularly for Hispanic women who have had the highest fertility rate. For example, the total fertility rate for Hispanic women fell sharply from 3.41 in 1990 to 2.6 in 2003. This was due primarily to the even sharper decline of fertility rates among foreign-born Hispanic women, dropping from 4.34 to 3.25 during the same period.<sup>2</sup> Between 1990 and 2003, the overall fertility rates in the region declined from 2.6 to 2.2 resulting in a decrease of total births from about 330,000 to 270,000 during a 13 year period. The impact of the decrease in total births between 1990 and 2003 on population growth has been more than offset by the significant turnaround in domestic migration.

Population growth in the region in 2003 accounted for 56 percent of the total increase in the state. *The top four California counties in population increase were in the SCAG region, including Los Angeles, Riverside, San Bernardino and Orange counties (Figure 4).* Two neighboring counties of the SCAG region also made it into the top ten, including San Diego County (5th) and Kern County (8th). Another neighboring county, Santa Barbara, only increased 4,500 people during 2003. In contrast, only two counties in northern California made it into the top ten, Sacramento (6th) and Santa Clara (10th).

**Figure 4**  
**Top Ten California Counties in Population Increase in 2003**



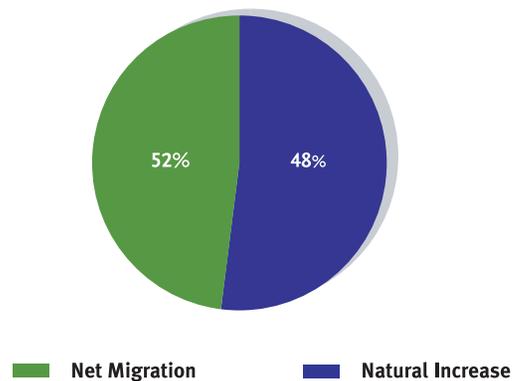
Source: California Department of Finance

Within the region, every county grew at a faster rate than the rest of the state in 2003. In particular, Riverside County achieved the highest growth rate of 3.4 percent in the state while Imperial and San Bernardino counties had the 5th and 6th highest rates respectively.

About 46 percent of total population increase in the region in 2003 was in Los Angeles County. Fourteen percent was in Orange County, and 35 percent was in the Inland Empire. Since 2000, the population growth share of Los Angeles County at 46 percent was significantly higher than its share of 35 percent during the 1990s, while the population growth share of Orange County at 14 percent was significantly lower than its share of 23 percent during the 1990s. For the Inland Empire, population growth share since 2000 was similar to that of the 1990s.

*As to the sources of population growth, close to half (48 percent) was due to natural increase and just over half (52 percent) was from net migration (Figure 5).* Natural increase represents the difference between births and deaths. Net migration includes both net domestic migration and foreign immigration. Based on the trends in the past few years, about four-fifths of the net migration was from foreign immigration, and one-fifth was from domestic in-migration. Hence approximately 41 percent of the total growth in the region in 2003 was estimated to be from foreign immigration and 11 percent from domestic in-migration.

**Figure 5**  
**Population Growth by Types of Source,**  
**2002-2003**



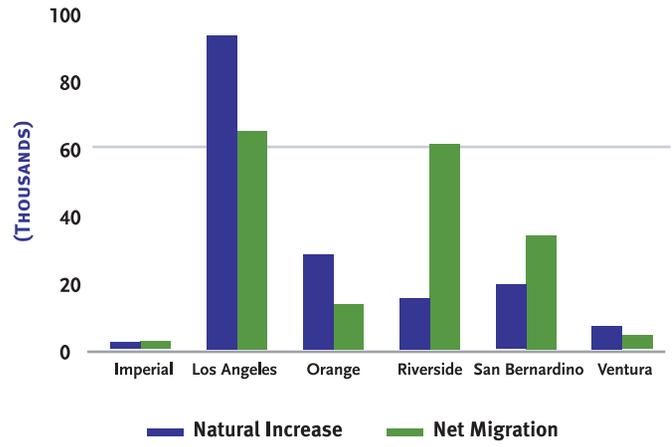
*Natural Increase = Births - Deaths*

*Source: California Department of Finance*

Within the region, natural increase and net migration contributed differently to the population growth among different counties (Figure 6). Overall, natural increase contributed much more significantly to the growth in the three coastal counties (Los Angeles, Orange and Ventura) than the three inland counties (Riverside, San Bernardino and Imperial) where net migration played a more important role. For example, in 2003, while natural increases accounted for almost 68 percent of the population growth in Orange County, it accounted for only

20 percent of the population growth in Riverside County. Conversely, while net migration accounted for 80 percent of the population increases in Riverside County in 2003, it accounted for only 32 percent of the population growth in Orange County. While net migration to the coastal counties (particularly Los Angeles) consisted primarily of recent foreign immigrants, net migration to the Inland Empire was primarily domestic migrants who moved within the region (i.e. intra-regional migration), particularly from Los Angeles County.

**Figure 6**  
**Population Growth by Types of Source by County,**  
**2002-2003**



*Source: California Department of Finance based on July 1st estimates*

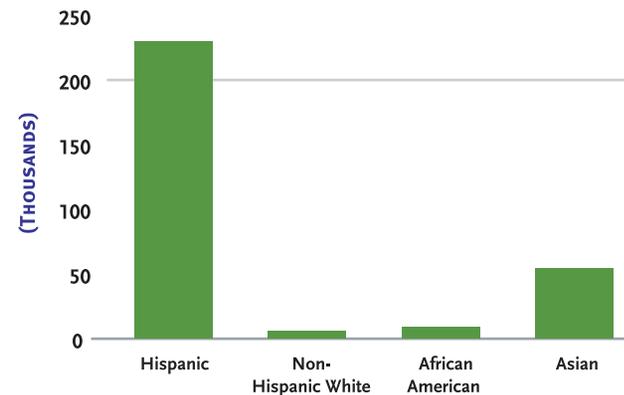


As to intra-regional migration among the six counties, the 2000 Census reported that between 1995 and 2000, Riverside County attracted 93,140 more people and San Bernardino attracted close to 60,000 more people due to intra-regional migration. Searching for more affordable single-family housing was an important reason for the net intra-regional in-migration into the Inland Empire. During the same period, Los Angeles County lost about 205,000 people to the other five counties in the region through net intra-regional outmigration. Within the region, Los Angeles County was the only county that experienced a net intra-regional outmigration between 1995 and 2000.<sup>3</sup>

### DEMOGRAPHIC TRANSFORMATION

The demographic transformation of the region continued through 2003, particularly with respect to ethnic composition. Population growth continued to be almost exclusively among Hispanics and Asians (Figure 7). Between 2000 and 2003, of the average annual growth of 296,000 people, about 230,000 (78 percent) were Hispanics and 54,000 (18 percent) were Asians. Non-Hispanic Whites and African Americans together accounted for only about four percent of the annual population growth. Hence, between 2000 and 2003, the share of non-Hispanic White population in the region continued to decrease, from 40 to 37 percent, while the share of Hispanic population continued to increase, from 41 to 43 percent. During 2002 and 2003, the non-Hispanic White population share fell below a half for the first time in Orange and Riverside counties, joining Imperial, Los Angeles and San Bernardino counties. In 2003, only Ventura County had a non-Hispanic White population share greater than half (55 percent). Also in 2003, the Asian population share was at

**Figure 7**  
**Population Growth by Race and Ethnicity**  
**(2000 - 2003 Annual Average)**



Source: U.S. Census Bureau

about 11 percent while the share of African American population in the region dropped below 7 percent.

Finally, the median age of the population in the region continued to rise, though at a slower pace than the rest of the nation. Median age in the region increased from 30.7 in 1990 to 32.3 in 2000 and 33.1 in 2003. In terms of median age in 2003, the region continued to be younger than the state (34) and the nation (36). The share of people 65 years and over increased slightly from 9.6 to 9.7 percent between 2000 and 2003. Among the nine largest metropolitan regions in the nation, the SCAG region continued to be the second youngest in terms of median age, next to the Dallas region.

# The Economy



# 2004

Between 2000 and 2003, the SCAG region outperformed other large metropolitan regions in job growth but with no improvement in household income.

# The Economy

## Employment

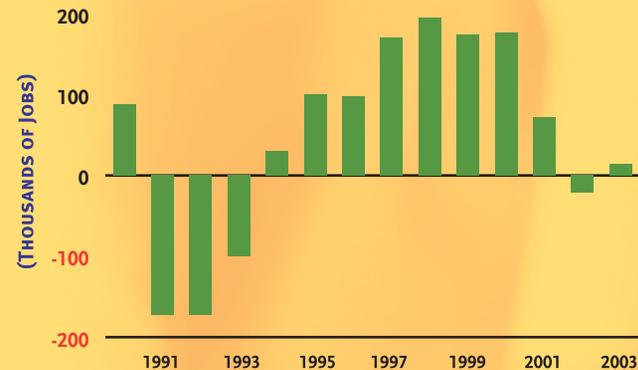
### WHY IS THIS IMPORTANT?

The number, types and wage level of employment, in large part, determine our region's economic activities and well-being. For example, income generated through employment accounts for about 75 percent of the total personal income in the region.<sup>1</sup>

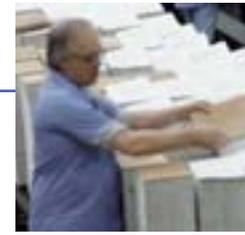
### HOW ARE WE DOING?

In 2003, the regional employment picture showed slight improvements over the previous year (Figure 8). After losing 21,000 jobs (or 0.3 percent) in 2002, total wage and salary jobs in the region increased by 14,000 (0.2 percent) during 2003. While the job losses in 2002 were significantly less than the average annual losses of 150,000 during the recession between 1991 and 1993, job increases in 2003 were also only half of the gain of 30,000 jobs in 1994.

Figure 8  
Wage and Salary Employment  
(Change from Previous Year)

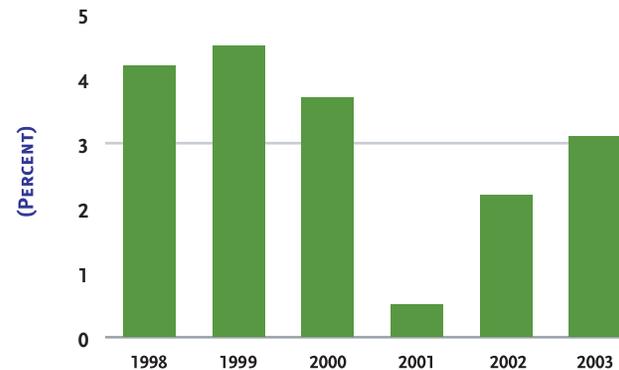


Source: California Employment Development Department



While the region experienced slight job increases since 2001, the rest of the state and the nation continued to suffer job declines. Between 2002 and 2003, the rest of California lost almost 60,000 jobs while the nation lost 410,000 (Figure 9). The continued job losses at the state and national levels in 2002 and 2003 occurred while the national economy has been in an expansion mode since the end of 2001, based on growth of Real Gross Domestic Product (GDP) (Figure 10). After dropping from 3.7 percent in 2000 to 0.5 percent in 2001, real GDP increased by 2.2 percent in 2002 followed by an increase of 3.1 percent in 2003. Increase in real GDP stemmed from turn-around in business investment and sustained growth in consumer spending. Business investment expanded in 2003 after contracting in 2001 and 2002. Consumer spending has continued to increase throughout the recession and recovery. Real consumer spending has increased by more than 3 percent annually since 2001.

**Figure 10**  
Real GDP 1998-2003, U.S.  
(Percent Change from Previous Year)



Source: U.S. Bureau of Economic Analysis

**Figure 9**  
Wage and Salary Employment (000)

County	1990	2000	2001	2002	2003	2001-2002		2002-2003	
						Number	Percent	Number	Percent
Imperial	44.9	50.4	50.0	50.8	53.0	0.8	1.6	2.2	4.3
Los Angeles	4,142.2	4,079.8	4,082.0	4,034.6	3,998.1	-47.4	-1.2	-36.5	-0.9
Orange	1,179.0	1,396.5	1,420.8	1,411.0	1,432.4	-9.8	-0.7	21.4	1.5
Riverside/San Bernardino	735.2	1,010.1	1,050.7	1,084.0	1,108.1	33.3	3.2	24.1	2.2
Ventura	247.0	294.3	299.0	301.0	304.0	2.0	0.7	3.0	1.0
<b>SCAG Region</b>	<b>6,348.3</b>	<b>6,831.1</b>	<b>6,902.5</b>	<b>6,881.4</b>	<b>6,895.6</b>	<b>-21.1</b>	<b>-0.3</b>	<b>14.2</b>	<b>0.2</b>
Rest of California	6,515.1	8,065.6	8,079.0	7,949.1	7,889.6	-129.9	-1.6	-59.5	-0.7
California	12,863.4	14,896.7	14,981.5	14,830.5	14,785.2	-151.0	-1.0	-45.3	-0.3
U.S.	109,403.0	131,785.0	131,826.0	130,341.0	129,932.0	-1,485.0	-1.1	-409.0	-0.3

Source: California Employment Development Department, Council of Economic Advisers

Several factors contributed to the divergence between healthy increase in real GDP and weak job market at the national and state levels. These include the uncertainty generated by the war in Iraq beginning in March 2003, significant productivity increases, and increased scale of outsourcing. For example, productivity growth in 2002 and 2003 was higher than 4.5 percent in contrast to the below 3 percent level between 1998 and 2001. These factors also affect the pace of job recovery in the region.

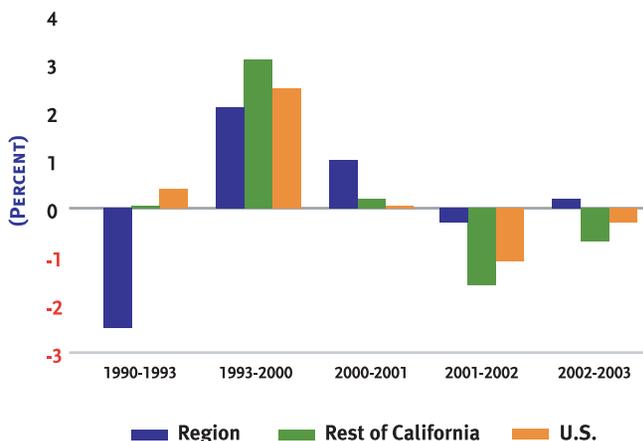
The 0.2 percent rate of job growth in the region in 2003 was in contrast to the losses in the rest of the state (-0.7 percent) and the nation (-0.3 percent) (Figure 11). Between 2000 and 2003, Southern California performed better every year in job

growth rates relative to the rest of the state, the nation and other large metropolitan regions.

The 2001 recession was centered on the information technology and telecommunication industries. The SCAG region relies much less on these industries than other large metropolitan regions, particularly the San Francisco Bay Area and the Boston region. In sharp contrast to the last recession when defense budget cuts hit the region hardest with its high concentration of defense and aerospace industries, the recent defense budget increase due to the war in Iraq and homeland defense has played a positive role in the region's recovery. Accordingly, between 2000 and 2002, the SCAG region and the Washington, DC region were the only two regions achieving job growth among the nine largest metropolitan regions in the nation (see Figure 72 page 109). During this period, the San Francisco Bay Area lost almost a quarter million jobs (or 6 percent). In addition, the New York region, significantly impacted by the September 11 terrorist attack, also lost more than 200,000 jobs (2 percent) during the two-year period. During 2003, except for the SCAG region and the Washington, DC region, the other seven largest metropolitan regions continued to lose jobs.

Within the region, every county increased its total number of payroll jobs in 2003 except for Los Angeles County. After losing 47,000 jobs (1.2 percent) in 2002, Los Angeles County lost another 37,000 jobs (or 0.9 percent) in 2003 (Figure 9 page 23). Total jobs in Los Angeles County dropped below 4 million in 2003 and were still 140,000 below the level in 1990. Job losses in Los Angeles County were concentrated in the manufacturing, information, and government sectors.

**Figure 11**  
**Employment Change**  
**(Annual Average)**



Source: California Employment Development Department;  
Council of Economic Advisers

In Orange County, after losing almost 10,000 jobs (or 0.7 percent) in 2002, total payroll jobs increased by 21,000 (or 1.5 percent) in 2003. More than half of the job increases in Orange County occurred in the finance, insurance, and real estate sector. There were also job gains in private education, health services, and professional and business services. Those job gains overcame the county's continuing losses in manufacturing and information sectors.

In 2003, job growth continued in the Inland Empire (Riverside and San Bernardino counties) though at a lower level than in the previous year. The Inland Empire experienced an increase of 24,000 jobs (or 2.2 percent), substantially fewer than the 33,000 job increase (3.2 percent) during the previous period. Nevertheless, the Inland Empire continued to be the leading new-job generator in the region. Job increases in the Inland Empire were concentrated in construction, professional and business services, and retail trade, while the government sector suffered some minor losses.

In Ventura County, total payroll jobs increased by 3,000 (or 1 percent) in 2003. Job growth in private education, health, financial, and the construction sectors more than offset the losses in manufacturing. Finally, Imperial County increased its payroll jobs by 2,200 (or 4.3 percent), the highest rate of job growth within the region. Almost 80 percent of the job increases were in the agricultural sector. Among the non-agricultural sectors, retail trade and transportation and warehousing increased another 500 jobs.

## Employment by Sector

### WHY IS THIS IMPORTANT?

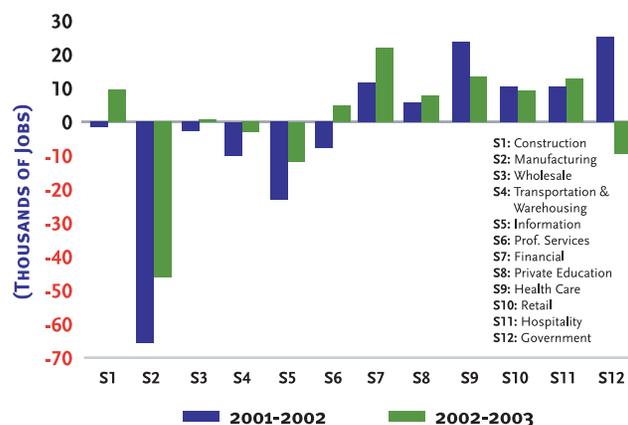
Different economic sectors have different levels of wages as well as future growth potential in employment and

income. Composition of occupations also varies among the different economic sectors. A more diversified regional economy will be less vulnerable to turbulent environments, such as recessions or disasters.

### HOW ARE WE DOING?<sup>2</sup>

In 2003, eight of the region's twelve major economic sectors experienced job increases. Only four sectors suffered job losses: manufacturing, information, transportation, and government. *Except for the government sector, the other three sectors with job losses are all export-oriented (Figure 12).* As discussed below, job losses occurred mostly in the manufacturing sector, with more than 46,000 net job decline.

Figure 12  
Employment Change by Selected Sectors  
(2001-2003)



Note: Financial = Finance, Insurance and Real Estate  
Information Sector includes communications, publishing, motion picture production and internet service providers.

Source: California Employment Development Department

The information sector was the second major source of job losses, with about 12,000 (or 4.4 percent) in 2003. (This sector incorporates communications, publishing and motion picture production along with internet service providers.) More than two-thirds of the 12,000 jobs lost were in the motion picture and sound recording sector and in telecommunications. The motion picture industry is still undergoing transition to improve its competitiveness through cost reduction.

Among all the major economic sectors, the most significant change occurred in the government sector. In 2002, the government sector was the leading job generator in the region, adding more than 25,000 jobs (or 2.8 percent). However, in 2003, the government sector suffered a loss of almost 10,000 jobs. Losses came almost exclusively from local school districts that reduced their payroll by 13,000 jobs in 2003 due to significant budget shortfalls. At the end of 2003, the State of California had an accumulated debt of over \$22 billion. The on-going structural deficit at the state level may continue to negatively impact the state and local government employment level in the region.<sup>3</sup> The federal government actually increased 1,600 jobs in the region in 2003.

*In 2003, the sector with the most job gains was the financial sector, including finance, insurance and real estate activities.* The financial sector increased 22,000 jobs, almost double its performance in 2002. With mortgage interest rates at a 40-year low, home sales and refinancing activities reached new highs. For example, in 2003, the total number of sales of new and existing homes in the region reached over 270,000, the highest since 1990.<sup>4</sup> Almost half of the job increase in the financial sector took place in Orange County.

More than 13,000 jobs were added to the health care sector in 2003. Most of the growth was in ambulatory care facilities rather

than hospital employment. Nursing and residential care facilities continued to post solid gains paralleling continued increase in the region's senior population. The hospitality and leisure sector (including food services, hotels, etc) added almost 13,000 jobs to the regional economy in 2003. The increase reflected the continued recovery of the tourism industry, which was severely impacted by the September 11, 2001 terrorist attack.

In 2003, the construction sector added almost 10,000 jobs, rebounding significantly from the small loss of 1,700 during the previous year. Residential construction continued to be the primary driver of gains in construction jobs, with 2003 seeing the greatest number of building permits issued since 1990. Non-residential construction, which typically lags economic recovery, continued to have small job losses. The retail trade sector increased more than 9,000 jobs. It benefited from the expansion of regional auto dealerships aided by low interest rates and manufacturers' incentives. The private education sector benefited to some extent from the budget problems in public education, adding 7,700 jobs in 2003.

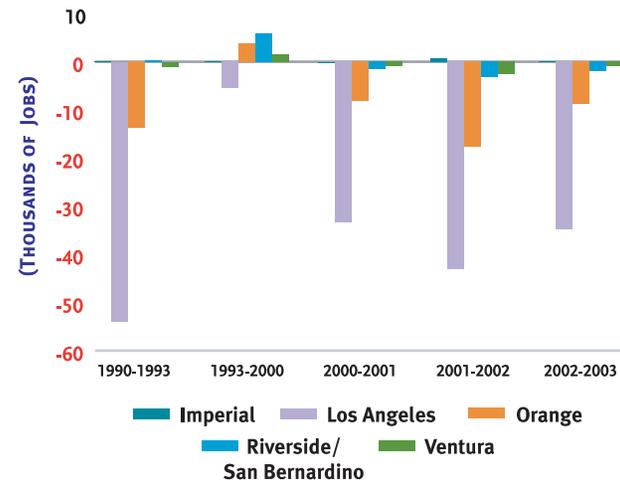
The wholesale trade and transportation and warehousing sectors have particularly strong ties to the region's foreign trade activities. Transportation and warehousing includes truck, rail and air transportation, couriers and messengers, support services for transportation, and warehousing and storage. Together, wholesale trade and transportation and warehousing constitute the logistics industry in the region. Though they did not perform particularly well in the last two years, between 1993 and 2003 these two sectors increased total jobs from 488,000 to 581,000. Due to the projected significant increase in foreign trade, total jobs in these two sectors are estimated to increase another 120,000 over the next 10 years.<sup>5</sup>

## MANUFACTURING SECTOR

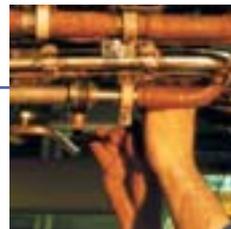
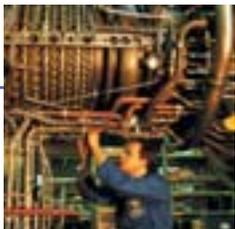
In 2003, the region lost 46,000 (or 5.2 percent) manufacturing jobs, however, declines were much less than the 66,000 job loss (7 percent) in 2002. The manufacturing sector in Southern California lost an average of 60,000 jobs per year between 1991 and 1993 (Figure 13). After some recovery from 1994 to 1998, it began to decline again. In 2003, the rate of manufacturing job losses in the region at 5.2 percent was higher than that of the nation at 4.3 percent. Among the 46,000 manufacturing jobs lost in 2003, 35,000 were in Los Angeles County and almost 9,000 were in Orange County. Losses in both counties were less in 2003 than in 2002.

Within the manufacturing sector, the losses were spread over many more subsectors compared with other metropolitan regions such as the San Francisco Bay Area or the Boston region, both of which have a much higher concentration of high tech manufacturing. In the SCAG region the transportation equipment subsector suffered the highest loss in 2003 but accounted for only 17 percent of the total manufacturing job losses. In addition, the computer and electronic product subsector lost more than 7,300 jobs, and the fabricated metal industry lost 6,400 jobs. Finally, the apparel manufacturing subsector lost 5,100 jobs, mostly in Los Angeles County.

Figure 13  
Manufacturing Employment Change  
(Annual Average)



Source: California Employment Development Department



## Unemployment

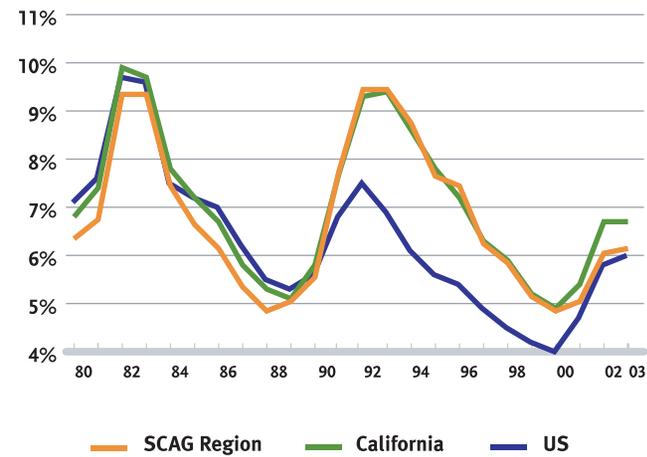
### WHY IS THIS IMPORTANT?

Unemployment significantly impacts the economic and social well-being of individuals and families. People with higher unemployment rates will naturally have higher poverty rates. Places with higher unemployment rates would require higher levels of public assistance.

### HOW ARE WE DOING?

In 2003, the region's labor force consisted of 8.53 million people, with 8 million employed. The number of unemployed workers reached more than 530,000, an increase from less than 400,000 just three years ago. Accordingly, the unemployment rate in the region was 6.2 percent in 2003, a slight increase of 0.1 percent from the previous year (Figure 14). Unemployment rates at the state and national level also experienced very little changes. The 0.1 percent increase in the region was slightly less than the increase at the national level of 0.2 percent. At the state level, the unemployment rate remained unchanged at 6.7 percent.

Figure 14  
Unemployment Rate

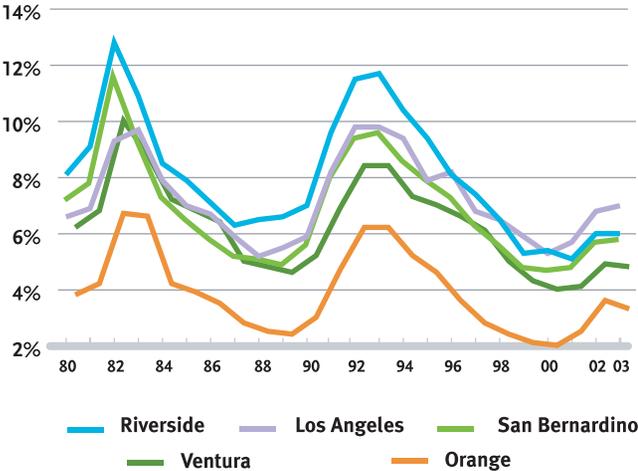


Source: California Employment Development Department

In 2003, the region's unemployment rate was slightly higher than the national average of 6 percent. Since 1992, the gap in unemployment rate between the region and the nation has continuously narrowed. In 2003, the 0.2 percent unemployment rate gap was the smallest since 1990.

Within the region, Los Angeles, San Bernardino and Imperial counties experienced slight increases in unemployment rates while Orange and Ventura counties experienced slight reductions. The unemployment rate in Riverside County remained unchanged. In 2003, Los Angeles County had the highest unemployment rate (7 percent) in the region followed by Riverside County (6.1 percent). These were also the only two counties with unemployment rates higher than that of the nation. At 3.8 percent, Orange County had the lowest unemployment rate in the region and one of the lowest in the nation. Imperial County has historically experienced much higher unemployment rates than the rest of the SCAG region.

**Figure 15**  
**Unemployment Rate by County**



Source: California Employment Development Department

**Figure 16**  
**Unemployment Rate-Imperial County**



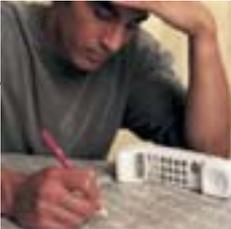
Source: California Employment Development Department

There were significant differences in unemployment rates among racial and ethnic groups. In 2003, based on statewide data, the unemployment rate among African Americans and Hispanics was around 10 percent, while much lower unemployment rates were experienced by Asians (about 6 percent) and non-Hispanic Whites (about 5 percent).

**Average Payroll per Job**

**WHY IS THIS IMPORTANT?**

The average payroll per job provides an indication of the overall quality of jobs available in the region. Higher average payroll per job contributes to higher per capita income.



## HOW ARE WE DOING?

In 2002, the average payroll per job in the region decreased by 0.7 percent from the previous year after adjusting for inflation, following the decline of 0.3 percent in 2001. Though the 2003 payroll data is still preliminary, sectors with significant job losses in the region, such as manufacturing and information sectors, had significantly higher than average payrolls per job, specifically motion picture (76 percent higher), computer and electronic products (70 percent higher), telecommunications (44 percent higher), transportation equipment (41 percent higher), and local government education (13 percent higher).<sup>6</sup> Among the subsectors with significant job declines, only apparel manufacturing had a wage level significantly (45 percent) below the overall average.

Among the subsectors with significant jobs increases, a few sectors also had wages higher than the overall average, specifically, financial activities (80 percent higher), and professional services (46 percent higher). However, more sectors had wages lower than the overall average, specifically, educational services (6 percent lower), retail trade (30 percent lower), nursing and residential facilities (40 percent lower), and accommodation and food services (60 percent lower). Hence, average payroll per job in the region was likely to continue to decline slightly in 2003.

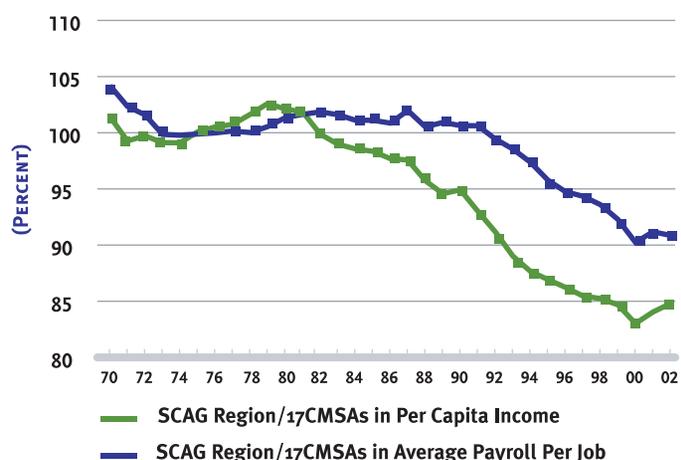
Among the nine largest metropolitan regions in the nation, the SCAG region ranked 5th in the growth of average payroll per job (see Figure 73 page 109). In 2002, the San Francisco Bay Area suffered a sharp decline of 4.7 percent in its average payroll per job, following the 8.6 percent decline the previous year.

*In 2002, the SCAG region ranked last in average payroll per job at about \$39,500 among the nine largest metropolitan regions*

(see Figure 74 page 110). Despite the 13 percent decline of its average payroll per job from 2000 to 2002, the San Francisco Bay Area continued to have the highest average payroll per job at approximately \$52,000, followed by the New York Region at about \$50,000.

Prior to 1992, the SCAG region maintained an average payroll per job at or above the average of the 17 largest metropolitan regions (Figure 17). Since 1992, the average payroll per job has been declining relative to the average of the 17 largest metropolitan regions. A recent study found that the 12 sectors that have been shrinking since 1990 were largely high paying manufacturing sectors that paid an average of \$45,165 a year. During the same period, the 12 sectors that provided the most job growth averaged only \$33,145 a year.<sup>7</sup> *In 2002, the SCAG region's average payroll per job was 91 percent of the average of the 17 largest metropolitan regions, almost the same as in 2001.*

**Figure 17**  
**SCAG Region vs. 17 Largest Metropolitan Regions**  
**(Average Payroll Per Job and Per Capita Personal Income)**



\* Defined as the CMSAs (Consolidated Metropolitan Statistical Areas)  
Source: U.S. Bureau of Economic Analysis

## Income

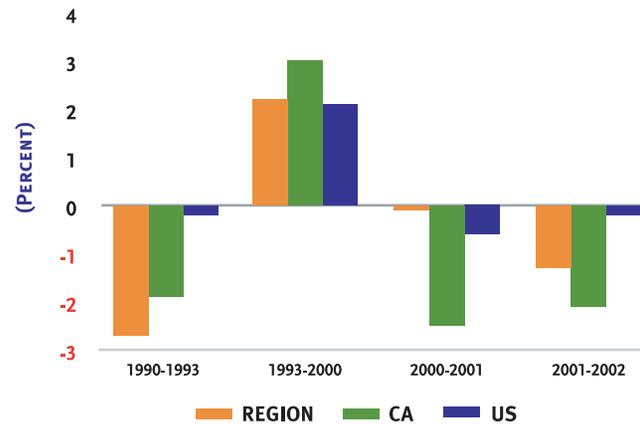
### WHY IS THIS IMPORTANT?

Per capita income is one of the most important indicators of economic well-being. An increase in per capita income is generally associated with improving social and economic indicators such as reduced poverty and an increase in educational attainment. A higher income level not only provides more resources for current consumption but also enhances future opportunities. An area's income level also provides an indication of its ability to provide services to its population.

### HOW ARE WE DOING?

In 2002 (the most current data available), the region's real personal income per capita (with inflation adjustment) declined by 1.3 percent from 2001 (Figure 18). This decline was larger than the loss of 0.1 percent in 2001. It was also the second time since 1993 that the region suffered an absolute decline in real per capita income. The decline of the real per capita income in the region in 2002 was significantly higher than the 0.2 percent loss in the nation. Nevertheless, the region performed a little better than the average of the nine major metropolitan regions in the nation (-1.8%) and the state average (-2.1%), both of which were impacted by the significantly bad performance of the San Francisco Bay Area with a 4.4 percent loss in real per capita income (see Figure 75 page 110).

Figure 18  
Growth of Real Personal Income Per Capita  
(Annual Average)

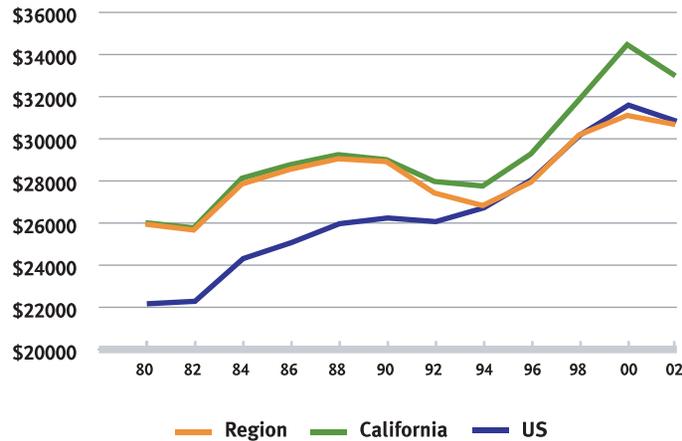


Source: U.S. Bureau of Economic Analysis

In 2003, real personal income per capita for the nation as well as the state stayed almost unchanged from 2002. Official data for real personal income per capita for the region are scheduled to be released in May 2005. Between 2000 and 2002, the region performed better than the state in the growth rates of jobs and in per capita income. In 2003, the region continued to outperform the state as whole in job growth. Hence, estimates by university researchers indicate that in 2003, the region should at least hold its real per capita income at 2002 level, as did the state.<sup>8</sup>



**Figure 19**  
**Real Personal Income Per Capita**  
**(2002 Dollars)**



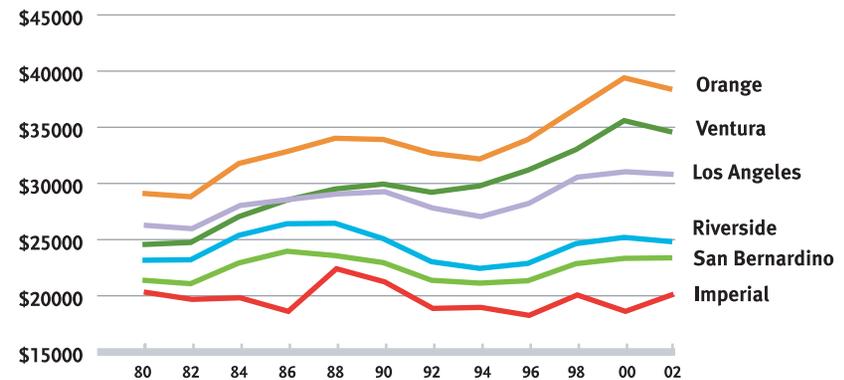
Source: U.S. Bureau of Economic Analysis

Among the 17 largest metropolitan regions in the nation, the SCAG region ranked last in terms of per capita income in 2002 and is expected to remain there in 2003 (see Figure 76 page 111). In 2002, the Miami region overtook the SCAG region in per capita income ranking primarily because of the inclusion of the wealthier Palm Beach County. Over the past three decades, the SCAG region's per capita income ranking dropped from the 4th highest in 1970 to 7th highest in 1990, and 16th place in 2000. Since 1981, the SCAG region's per capita personal income has been below the average of the 17 largest metropolitan regions, and the gap had increased until 2000. *In 2002, per capita personal income in the SCAG region was 85 percent of the average of the 17 largest metropolitan regions, a slight improvement from the previous year (Figure 17).*

Nevertheless, the long-term trend of decline relative to other metropolitan regions may continue to challenge the region, because some of the fundamental factors remain the same. These factors include the continuing loss of high wage manufacturing jobs and the overall lower educational level of the work force in the region.

Within the region, real personal income per capita in 2002 dropped throughout the region except in Imperial County (Figure 20). In 2002, both the real per capita incomes in Imperial and Riverside counties were lower than their respective 1990 levels. Orange County continued to have the highest per capita personal income while Imperial County had the lowest.

**Figure 20**  
**Real Personal Income Per Capita by County**  
**(2002 Dollars)**



Source: U.S. Bureau of Economic Analysis

## HOUSEHOLD INCOME

Real median household incomes (after adjusting for inflation) in the nation and the state remained essentially unchanged in 2003 from 2002.<sup>9</sup> Household income includes income from all sources for all members of the household. Nationally, real median household income at about \$43,318 in 2003 was almost the same as in 2002. This finding of no change follows two years of decline that reflected the effects of the recession. In California, real median household income in 2003 remained the same as in 2002 at \$48,912, after dropping 1.5 percent (\$725) from 2001.

Between 2002 and 2003 based on national data, real median household income did not change for non-Hispanic White, African American or Asian households. However, it fell 2.6 percent for Hispanic households, from \$33,861 in 2002 to \$32,997 in 2003. The real median household income for immigrant households also fell by 3.5 percent during the same period. This might be due to the concentration of Latinos and immigrant workers in the low-wage manufacturing and service sectors, which were hit hard by the 2001 recession.

Within the region, median household income declined between 1990 and 2000, which was contrary to the national trend.<sup>10</sup> In 2003, median household income in the region was about \$47,707. *Recent Census surveys indicated that the region experienced no growth in median household income between 2000 and 2003* (see Figure 34 page 46). In 2003, the San

Francisco Bay Area continued to have the highest median household income of \$66,038 among the major metropolitan regions.

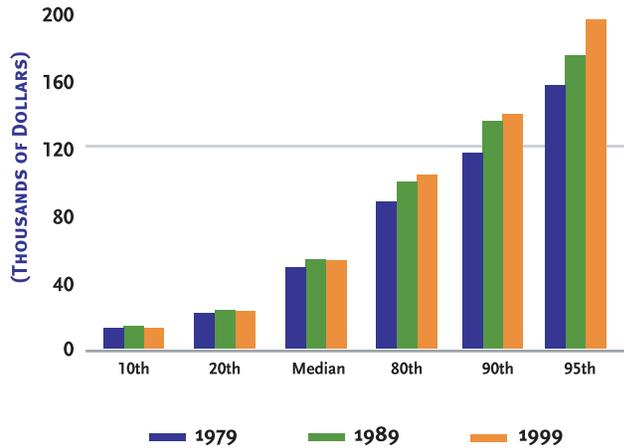
## INCOME INEQUALITY

One way to measure income inequality is through the household income ratios among households at different percentiles. For example, the income level for the 10th percentile indicates how the lowest income class fared in a given year. The 10th percentile is the level of income for a given area that only 10 percent of households are beneath. The 80th percentile is the level of income 80 percent of households are beneath.

Between 1979 and 1989, real household income (after adjusting for inflation) in the region increased for all household income percentiles as shown in Figure 21.<sup>11</sup> During this period, income inequality as indicated by the household income ratios between the very rich and the very poor (90th/10th) increased slightly from 10 to 10.4 (Figure 22). Household income ratios between the richest and the median (95th/50th) and other comparisons remained almost unchanged. However, between 1989 and 1999, real household income for the 10th, 20th and 50th (median) percentiles declined while the 80th, 90th and 95th percentile continued to increase. Accordingly, income inequality as indicated by household income ratios increased for all comparisons, particularly between the very rich and the very poor. For example, household income ratios between the very rich



**Figure 21**  
Trends in Household Income, SCAG Region  
(2003 Dollars)

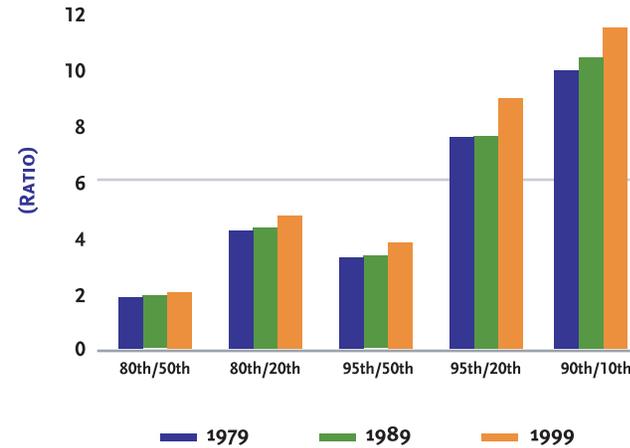


Source: 1980, 1990 and 2000 Census

and the very poor (90th/10th) increased from 10.4 to 11.4 while between the richest and the median (95th/50th) increased from 3.3 to 3.8.

At the national level, income inequality has been increasing steadily since 1969.<sup>12</sup> Specifically, household income ratios for

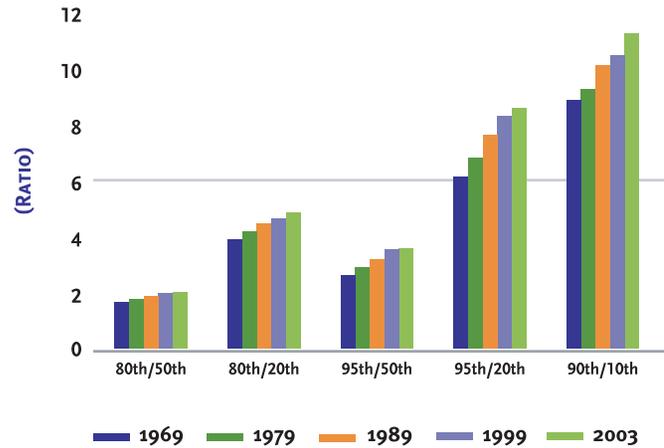
**Figure 22**  
Household Income Ratios, SCAG Region



Source: 1980, 1990 and 2000 Census

all the five pairs of higher and lower income ratios increased in every 10-year period since 1969 (Figure 23). For instance, between 1969 and 2003, household income ratios between the richest and the median (95th/50th) increased from 2.6 to 3.6, while between the very rich and the very poor (90th/10th) it increased from 8.9 to 11.2.

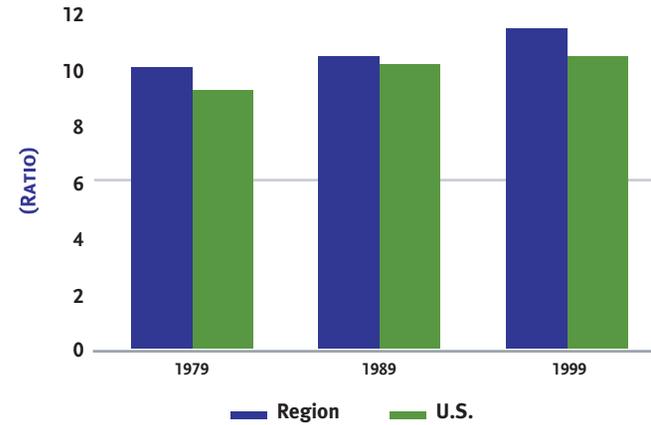
**Figure 23**  
Household Income Ratios, U.S.



Source: U.S. Census Bureau, Current Population Reports

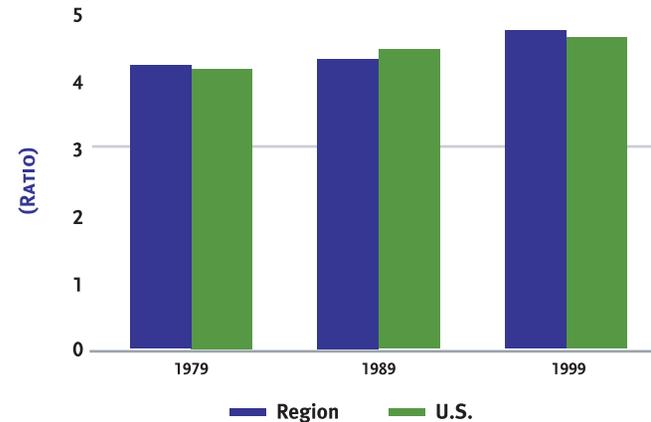
After looking at the income inequality trends at the regional and national levels separately, one can compare the degree of income inequality between the SCAG region and the nation. *Between 1979 and 1999, the region generally had a slightly higher income inequality than the nation when comparing the household income ratios. For example, during this period, the region generally had slightly higher income ratios between the very rich and the very poor (90th/10th), between the rich and the poor (80th/20th) and between the rich and the median (80th/50th) (Figures 24 to 26). In 1999, the region had higher income ratios than the nation for all five household income ratios.*

**Figure 24**  
Household Income Ratios  
(90 Percentile/10 Percentile)



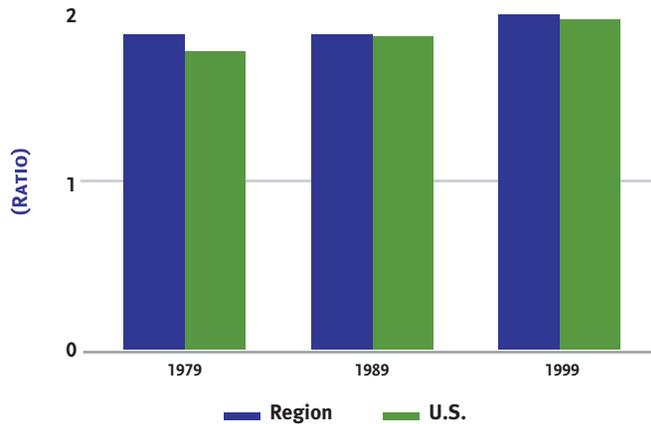
Source: U.S. Census Bureau

**Figure 25**  
Household Income Ratios  
(80 Percentile/20 Percentile)



Source: U.S. Census Bureau

**Figure 26**  
**Household Income Ratios**  
**(80 Percentile/50 Percentile)**



Source: U.S. Census Bureau

## Poverty

### WHY IS THIS IMPORTANT?

The poverty rate measures the proportion of a population that has an income below the poverty line and therefore lacks the economic resources needed to support a minimum acceptable standard of living. The poverty line is adjusted for family size. Poverty not only results in current economic hardship, but also limits an individual's and family's future development opportunities. A higher poverty rate is both a cause, as well as an outcome, of lower educational attainment and higher unemployment rates. The extent of poverty also reflects the need for various kinds of public assistance.

Poverty among children is of particular concern. Poverty in childhood is associated with a higher risk for dropping out of school, poor health, teenage pregnancy and a long-term economic disadvantage as adults.

### HOW ARE WE DOING?

In 2003, a family of four earning less than \$18,810 a year is classified as living in poverty, compared with \$14,810 for a family of three; \$12,321 for a family of two; and \$9,393 for unrelated individuals.<sup>13</sup> Between 2002 and 2003, poverty rates increased in the nation and the state. Nationally, the poverty rate increased from 12.1 percent in 2002 to 12.5 percent in 2003 for all persons. The poverty rate has been climbing since 2000, when it hit a 26-year low of 11.3 percent. The poverty rate for children also increased from 16.7 percent in 2002 to 17.6 percent in 2003. In California, the poverty rate increased from 13 percent to 13.4 percent between 2002 and 2003.

*In the region, close to 15 percent of residents lived in poverty in 2003, continuing to be significantly higher than the state and the nation.<sup>14</sup> This was about a 1 percent increase since two years ago. In addition, more than 20 percent of children under 18 were below the poverty line in 2003, a 1.7 percent increase since 2001. The region continued to have the highest poverty rate among the nine largest metropolitan regions in the nation.*

## Taxable Sales

### WHY IS THIS IMPORTANT?

Taxable sales provide important revenue sources for state and local governments and special districts. While employment and income are measures on the production side, taxable sales measures the level of consumption activities. Taxable sales tend to follow closely with trends in personal income, job market and consumer confidence.

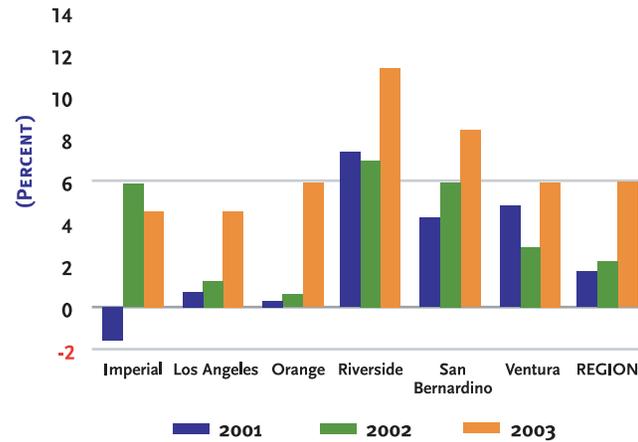
### HOW ARE WE DOING?

In 2003, total taxable sales in the region reached over \$217 billion, an increase of \$12 billion (or 6 percent) from 2002 (Figure 27).<sup>15</sup> This was significantly better than the previous two years when total taxable sales increased only about 2 percent per year.

Within the region, Riverside and San Bernardino counties continue to have the highest rates of growth in taxable sales. Except Imperial County, every county achieved significantly higher rates of growth in 2003. For example, after two years of almost no growth, Orange County increased its taxable sales by 6 percent in 2003. Taxable sales in Los Angeles County increased by 4.5 percent in 2003, significantly higher than the 1.2 percent increase in 2002.



Figure 27  
Taxable Sales  
(Change from Previous Year)



Source: California State Board of Equalization

## International Trade

### WHY IS THIS IMPORTANT?

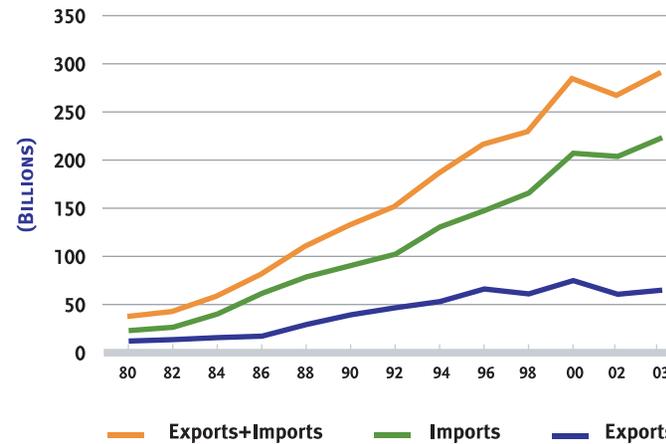
International trade includes export and import activities that create job opportunities and bring income into the region. Though exporting goods produced in Southern California generates higher net economic benefits for the region, imports can create economic benefits too. The region's role as a major transshipment center linking domestic and global markets is also of national and international significance.

### HOW ARE WE DOING?

During 2003, total trade through the Los Angeles Customs District (LACD) increased from \$267 billion to \$291 billion, a new record level. This was an improved performance from a \$3 billion decline during the previous year (Figure 28). Most of the increase in trade during 2003 was through imports, though exports also experienced some improvements. Specifically, during 2003, imports increased by almost \$20 billion while exports increased by \$4 billion.

Among the \$291 billion trade through the LACD, 77 percent were imports while the remaining 23 percent were exports. In 2003, among the \$68 billion exports out of the LACD, almost half were by air with the other half by sea. The exports by air are generally smaller and higher value goods. On the other hand, among the \$223 billion imports into the LACD, 86 percent were by sea with the other 14 percent by air.

Figure 28  
Exports and Imports - LA Customs District  
(Current Dollars)



Source: US Census Bureau

The region's prominence in international trade has been fostered through its large domestic market, global ties through its growing Asian and Hispanic communities, strategic location and excellent trade infrastructure serving the rest of the nation. For example, total trade through the LACD increased from less than \$40 billion in 1980 to \$291 billion in 2003, an increase of more than six times (Figure 28). The region's direct employment in international trade also increased from about 170,000 in 1980 to 475,000 in 2003, which also represents an increase of 31,600 jobs from 2002.<sup>16</sup>

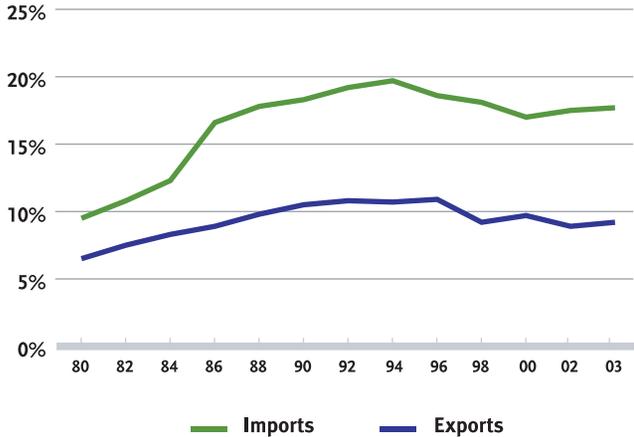
Trade jobs are found in a variety of activities, including vessel operation, cargo handling, surface transportation (truck and rail), trade finance, freight forwarding, custom brokerage, insurance, etc. During the same period, the share of the LACD's trade value of the U.S. total grew from about 8 percent to over 14 percent.

The shares of the LACD's export of the U.S. total have ranged between 9 and 10 percent for the past five years while shares of imports have been between 17 and 18 percent (Figure 29). The share of LACD's trade of the U.S. total has remained around 14.5 percent since 1998.

In 2003, the LACD retained the number one ranking in the U.S. in terms of total trade value, followed by the New York Customs District with \$229 billion total trade value. Detroit remained the nation's number three customs district with \$184 billion of its two-way trade value.

In 2003, the top three export commodities were electrical apparatus, flying devices (planes, aircraft parts, etc.) and electronic machinery. The top three import commodities were electronic machinery, motor vehicles, and magnetic, radio recording and playback devices.

**Figure 29**  
Exports and Imports - LA Customs District  
(Percent of U.S.)



Source: US Census Bureau

Asian countries dominated both imports (86 percent) as well as exports (72 percent) through the LACD.<sup>17</sup> In 2003, China continued to be Southern California's leading trade partner, after surpassing Japan in 2002. Total trade value with China through LACD reached over \$68 billion in 2003, more than a five fold increase from \$12 billion in 1993. Other major trade partners included South Korea, Taiwan and Malaysia.



# Housing



2004

Continuing sharp increases in home prices and lack of income growth made housing much less affordable.

# Housing

## Housing Construction

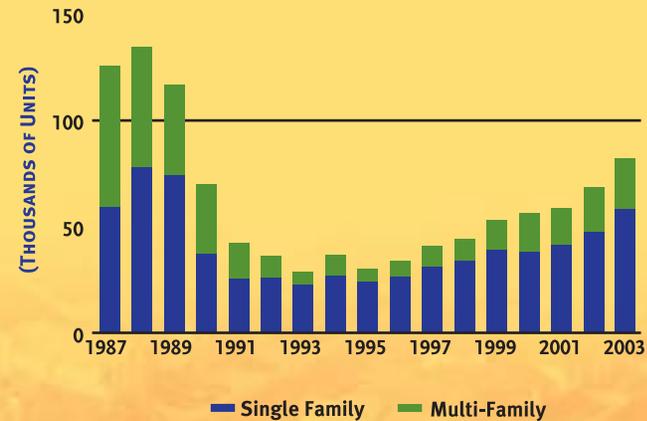
### WHY IS THIS IMPORTANT?

The magnitude of housing construction, population growth, and new households are major determinants of housing prices. Different geographical distributions of new housing result in different needs for support infrastructure and services. The residential construction industry is also an important source of employment and corporate profit in the region.

### HOW ARE WE DOING?

In 2003, the region experienced the largest number of residential building permits issued (78,300 units) as well as the largest increase (10,000 units or 15 percent) in a one year period since 1989 (Figure 30). Since 1995, the number of permits issued has been rising steadily, almost doubling the corresponding figure just six years ago.

Figure 30  
Residential Building Permit Activity



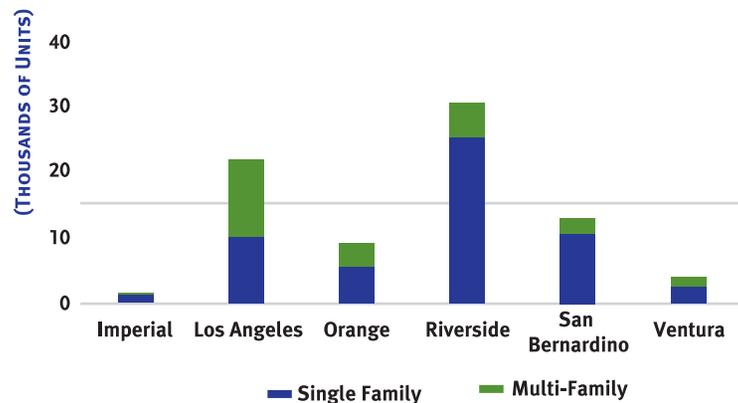
Source: Construction Industry Research Board



Despite the continuous increase of permit activities in the past three years, housing construction continued to lag behind population growth. For example, between 2000 and 2003, population in the region increased by almost 1 million.<sup>1</sup> However, during the same period, just over 200,000 building permits were issued.

Within the region, the Inland Empire counties accounted for about 55 percent of the total permits issued in 2003. In particular, Riverside County led among the six counties in both the numbers of permits issued (30,300) as well as the rate of increase in permits issued, up 34 percent from the previous year. In 2003, building permit increases occurred in every county in the region except Orange County.

**Figure 31**  
**Residential Building Permits by Housing Types, 2003**

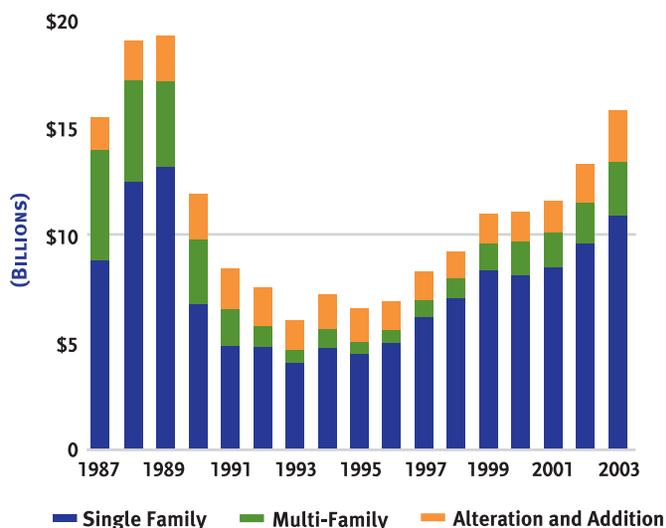


Source: Construction Industry Research Board

Among the total permits issued in 2003, only about 30 percent were for multi-family housing, growth of which has been quite consistent over the past four years. However, within the region, there continued to be significant differences between the coastal and inland counties with respect to the share of multi-family housing permits. In 2003, 52 percent of the permits in Los Angeles County were for multi-family housing while over 40 percent in Orange County were for multi-family housing (Figure 31). In Ventura County, the share of multi-family housing permits was 36 percent, a significant increase from the 14 percent share in the previous two years. In the remaining three inland counties, about 80 to 85 percent of the total permits were for single-family housing construction.

Total valuation of permits in 2003 reached over \$15.5 billion, with the largest annual increase of \$2.3 billion (or 17 percent) since 1987 (Figure 32). While the housing construction industry in the region almost collapsed during the recession from 1990 to 1993, it has been serving as an important stabilizing force to the regional economy since the 2001 recession. From 2002 to 2003, while the valuation of multi-family permits more than doubled, the valuation of permits for alteration and additions almost tripled.

**Figure 32**  
**Valuation of Residential Building Permits**



Source: Construction Industry Research Board

## Homeownership

### WHY IS THIS IMPORTANT?

Owning one's home has long been considered an important part of the American Dream. The equity generated from homeownership represents almost 45 percent of total household wealth.<sup>2</sup> Higher homeownership rates also help to improve neighborhood stability.

### HOW ARE WE DOING?

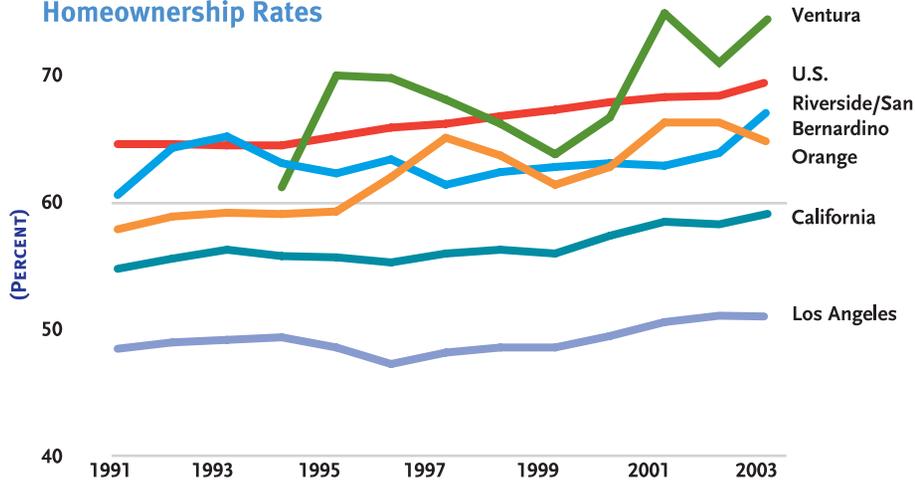
*In 2003, homeownership rates increased at both the national and state level while remaining unchanged in the SCAG region.*

Nationally, the homeownership rate increased slightly from 67.9 percent in 2002 to 68.3 percent in 2003. The homeownership rate in California increased from 57.7 percent to 58.9 percent during the same period. In the SCAG region, however, the homeownership rate in 2003 remained at about 56 percent (Figure 33).

Within the region, Ventura County and the Inland Empire experienced significant increases in homeownership rates. In 2003, Ventura County's homeownership rate increased by 3 percent to 73 percent, the highest in the region. It is also the only county in the region with a rate higher than the nation's. Homeownership in Riverside/San Bernardino counties also increased, from 63 percent to 67 percent. In contrast to the significant expansion of homeownership in these three counties, Orange County experienced a decrease in the homeownership rate from 65.5 percent to 63.4 percent. Slowdown in housing construction and relatively higher housing prices contributed to the decline in homeownership rate in Orange County. Finally, the homeownership rate in Los Angeles County declined very slightly in 2003. At 50 percent, Los Angeles County continued to be the only county in the region with a homeownership rate lower than that of the state and the nation.

Among the nine largest metropolitan regions in the nation, Detroit and Philadelphia had homeownership rates over 70 percent, higher than the national average.<sup>3</sup> Only three regions had rates below 60 percent, including San Francisco, the SCAG region and New York.

**Figure 33**  
**Homeownership Rates**



Source: U.S. Census Bureau. Ventura County annual data started from 1994. Imperial County's homeownership rate was 58 percent in both 1990 and 2000, other annual data unavailable.

## Housing Affordability

### WHY IS THIS IMPORTANT?

Housing affordability provides an indication of the level of financial burden of housing expenses. Housing constitutes the largest share of household expenditures among all consumption items. When a household spends too much on housing, there is not enough left to meet other household needs, such as transportation, healthcare or education. Housing affordability also affects decisions as to where to live. Hence, housing affordability is an indicator reflecting the fundamental well-being of households. In addition, it also influences business decisions to locate or expand in the region. Lack of affordable housing will result in a weakening of our region's attractiveness and competitiveness.

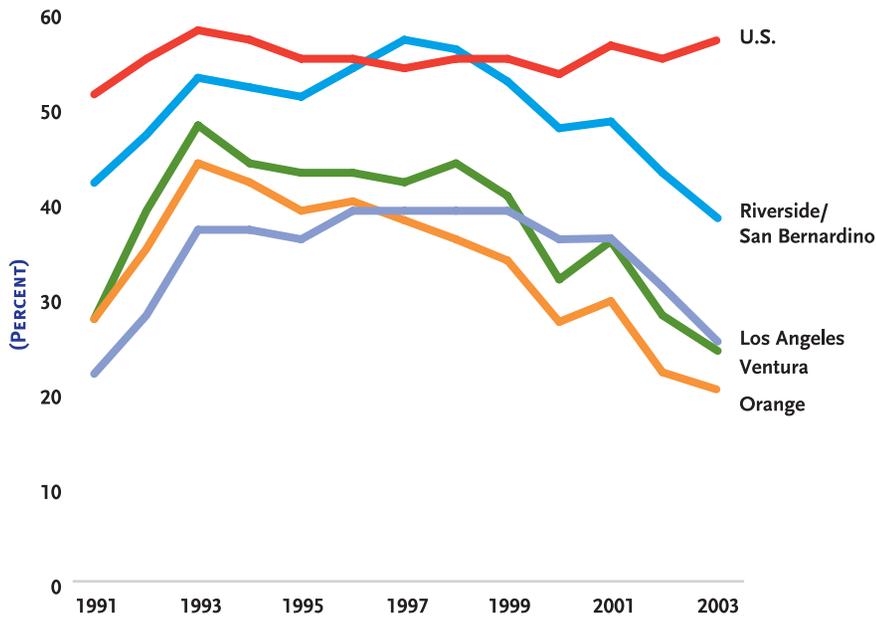
### HOW ARE WE DOING?

Housing affordability can be measured by the share of households that can afford to purchase a median-priced house or by the share of household income spent on housing. *By both measures, housing affordability continued a declining path throughout Southern California in 2003. In Los Angeles County, the share of households able to afford a median-priced home dropped from 31 percent in 2002 to 26 percent in 2003. In Orange County, only one fifth of the households could afford a median-priced home, the lowest since 1990. Though the Inland Empire counties continued to have higher housing affordability than the coastal counties, the corresponding share also dropped from 43 to 38 percent during the same period (Figure 34). In 2003, every county had lower housing affordability than the national average and the gaps have continued to widen since 1997. While close to 58 percent of the nation's households could afford a median-priced house in 2002, less than a third of the region's households could achieve the same.*

Housing affordability is generally impacted by household income, home prices and mortgage interest rates (Figure 35). *During 2003, continuing sharp increases in home prices and lack of growth in household incomes offset gains from lower interest rates, making housing less affordable. There has been a lack of growth in median household income in the region since 2000, after a slight decline during the 1990s (Figure 36). However, average home prices in the region reached historical peaks in 2003 in almost every county. Since 1998, after recovering from the losses during the previous recession, average home prices had increased between 6 and 7 percent per year up to 2001.*

**Figure 34**  
**Housing Affordability**

(Percent of Households Who Can Afford to Purchase a Median-Priced Home)



\*Data for Imperial County is not available. Source: California Association of Realtors.

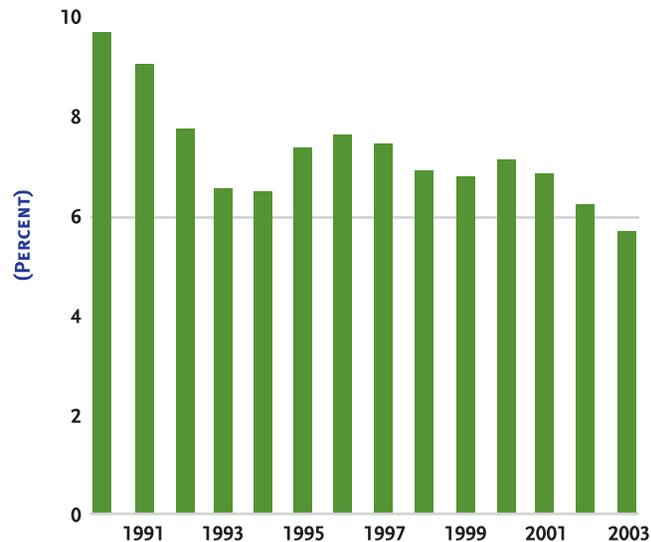
Between 2001 and 2003, partly because of lower mortgage interest rates and significant population growth, average home prices increased by about 30 percent in coastal counties and 25 percent in the Inland Empire. For example, average price for new and existing homes in Orange County rose from \$330,000 in 2001 to \$430,000 in 2003, an increase of \$100,000 in just two years. During the same period, average home prices increased from \$200,000 to \$250,000 in Riverside County (Figure 37).

In 2003, close to 43 percent of owner households (with a mortgage) in the region had monthly costs at or greater than

30 percent of household incomes, up from 39 percent in 2000 (Figure 38). At the national level, only 30 percent of owner households had monthly costs at or greater than 30 percent of household incomes. In 2003, the SCAG region continued to have the highest homeowner housing cost burden among the nine largest metropolitan regions in the nation.

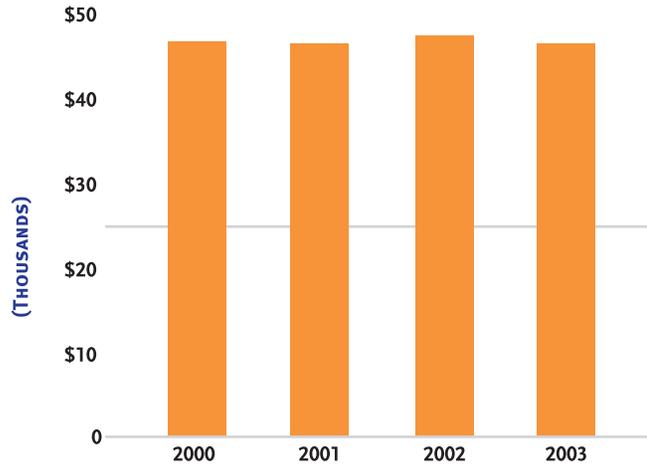
Between 2000 and 2003, average rents in the region increased generally between 2 to 4 percent per year after adjusting for inflation (Figure 39). In 2003, average monthly rents were about \$1,300 in the coastal counties and just below \$1,000 in the Inland Empire. With no growth in household income, rental cost burden has continued to rise.

**Figure 35**  
**Average Mortgage Rate**



Source: Real Estate Research Council of Southern California

**Figure 36**  
**Median Household Income\***  
 (2003 Dollars)

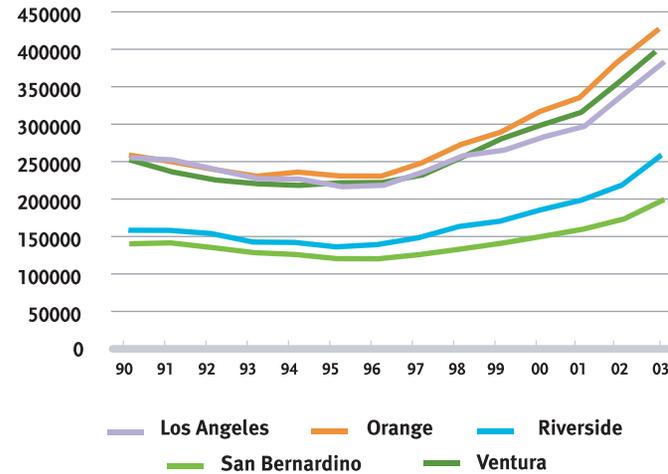


\*U.S. Census Bureau determined that, in the SCAG Region, median household income differences among the three years above were not statistically significant considering sample size.

Source: U.S. Census Bureau

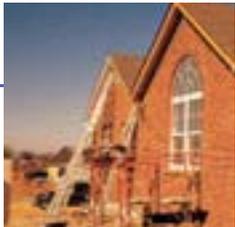
In 2003, among the approximately 8 million renters in the region, close to 53 percent, or more than 4.2 million renters, spent 30 percent or more of their incomes on rent (Figure 40). Since 2000, rental cost burden has been increasing at the regional, state and national levels.

**Figure 37**  
**Average Home Price**  
 (New and Existing in Current Dollars)



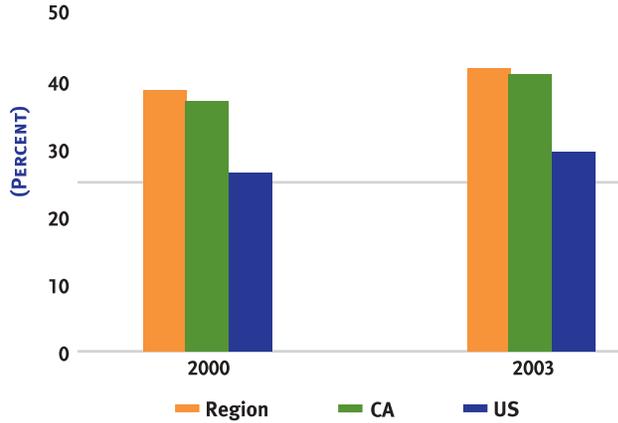
Source: Real Estate Research Council of Southern California

Among the nine largest metropolitan regions in the nation, the SCAG region continued to have the highest percentage of rental households with monthly rent at or greater than 30 percent of household income. Following the SCAG region was the San Francisco Bay Area, with close to 47 percent of renters spending 30 percent or more of their incomes on rent. In addition, the state of California had the highest median rent among all the states in 2003. Hence, rental housing is an important public policy issue at the regional as well as the state level.



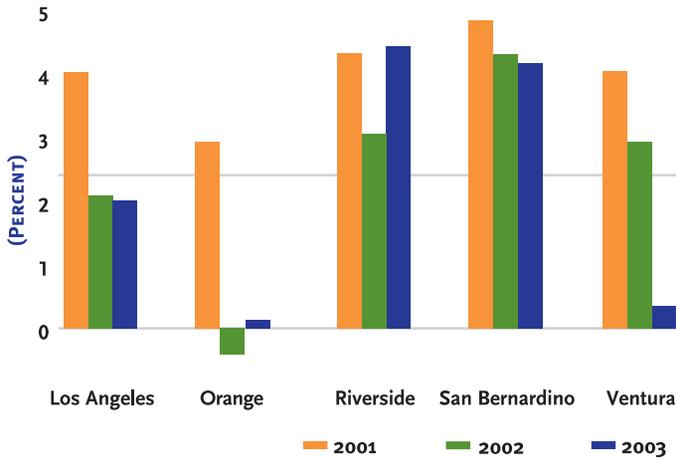
**Figure 38**  
**Housing Cost Burden**

(Homeowner Households with Cost At Least 30 Percent of Household Income)



Source: U.S. Census Bureau

**Figure 39**  
**Average Monthly Rent**  
(Change from Previous Year)

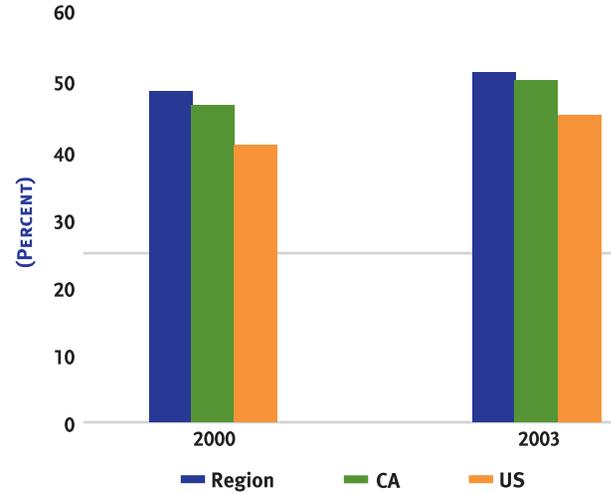


\* With inflation adjustment

Source: Real Estate Research Council of Southern California

**Figure 40**  
**Rental Cost Burden**

(Renters Paying 30 Percent or More of Household Income on Rent)



Source: U.S. Census Bureau

The extraordinary high housing cost burdens not only impact the well-being of residents but also discourage business decisions to locate or expand in the region. Lack of affordable housing remains a serious challenge to the region's long-term economic growth.

## Housing Crowding

### WHY IS THIS IMPORTANT?

Housing crowding measures the percent of housing units with more than one person per room, including all rooms except bathrooms. It provides indication of housing shortages and housing affordability. Lack of affordable housing will lead to higher levels of housing crowding.

### HOW ARE WE DOING?

Based on the 2000 Census, the region had the highest rate (20 percent) of crowded housing among the nine largest metropolitan regions, significantly above the second highest of 11 percent in the Bay Area.<sup>4</sup> Between 2000 and 2003, the share of crowded housing in the SCAG region was reduced by about 1.5 percent. Within the region, Los Angeles County continued to have the highest rate while Orange and Ventura counties had the lowest.



# Is The 2% Strategy A Solution for Southern California?

by William Fulton

A region as large and complicated as Southern California – 17 million people spread across 187 jurisdictions covering thousands of square miles – is not powered by any one single force. What happens here is the result of a combination of economic, cultural, and political forces all across the globe and how those forces manifest themselves here at home. When you think about the way in which our region has been affected in the last three decades by war throughout the world, the economic rise of East Asia, the end of the Cold War, the decline of the aerospace industry, and economic and political strife in Latin America – well, it’s hard to imagine that regional efforts to manage growth are worth thinking about at all.

But regions do rise and fall in large part based on the policy decisions by their civic and political leaders. The original rise of Southern California as an urban power in the early part of the 20th Century was due in large part to such decisions – decisions to import water to the region and to build a vast regionwide transportation system capable of accommodating lots of additional growth.

Here in Southern California we are in the process of envisioning anew what our region’s future might look like and struggling to

find ways to make that new vision become a reality. As is typical of the region, this new “visioning” effort is taking place in many different locations and venues around the region.

Such efforts have taken place through SCAG’s Compass project, a regional growth visioning effort that has used a variety of outreach methods, including public opinion surveys, workshops, and media articles. But it also takes place at the subregional level and in many City Halls and County Halls of Administration throughout the region. To say nothing of civic and nonprofit visioning efforts and attempts by Chambers of Commerce and other business groups to get a hold on the future of the region as well.



Southern California’s need to rethink its future has emerged clearly from the demographic and economic changes of the last 30 years – the decline of the postwar middle-class

suburban dream and the rise of a more multi-ethnic, post-industrial society. Curiously, though, the current crop of regional planning efforts didn't come from Southern California at all. It came from a more classically suburban and homogenous area – Salt Lake City – where a civic group formed by Gov. Michael Leavitt and business leaders known as “Envision Utah” engineered a regional planning exercise almost a decade ago.

The biggest breakthrough that emerged from Envision Utah was what has come to be known as the “chip game”. You get civic, political, and business leaders around a table with a map of the region, you give them “chips” that represent increments of future growth (in Salt Lake City these were squares of paper), and you tell them to put the chips down where they think the growth should go.

In the introduction to our book *The Regional City*, Peter Calthorpe and I described how Leavitt (now the EPA administrator) and other leaders initially laid the chips down next to each other, consuming all agricultural land and scenic mountain plateaus. Then, realizing that this will destroy open land they value, Leavitt and his colleagues began laying the chips on top of each other and on top of existing urban areas – in locations that were either underbuilt or in need of renewal.

The “chip game” was part of the foundation of SCAG’s Compass project, which was designed to create a regional consensus about where future growth in Southern California might go and how it would be accommodated. But translating a technique developed in Salt Lake City to Southern California caused a few understandable bumps in the road. At 1.6 million people, metro Salt Lake is one-tenth the size of the SCAG region – indeed, it’s about the size of a SCAG subregion. And in such a big region with so many areas oriented toward a slow-growth approach, it’s tempting just to put the chips in your pocket and pretend they don’t exist – or else push them so far away from your neighborhood or town that your life will be unaffected, even though somebody’s life might be seriously messed up as a result. This is the typical outcome of the Regional Housing Needs Assessment, not just in Southern California but throughout the state. And it is exactly what happened in some of the Compass workshops.

But what also happened was an increased understanding that we’re all in this together, and future growth has to go somewhere. And although we might continue to fight about where growth will go – and how much of it will go here or there – most civic and political leaders in the region have now bought into SCAG’s “2% Strategy”. This idea suggests that by focusing most growth on 2% of the land mass of the region – mostly in centers and corridors and near transit stops – we can





accommodate most future growth in ways that strengthen and reinforce the region rather than make it more unmanageable.

The “2% Strategy” might seem pretty far-fetched at first, but it’s really just an acknowledgment of the great urban design defect of Southern California, which is a lack of what might be called “centeredness”. Unlike elsewhere in the country, sprawl is not many problems but just one problem: a lack of strong downtowns and town centers.

A century ago, the Red Car system created a string of pearls from Santa Monica to San Bernardino – town centers that were compact, walkable, and diverse. Dozens were created, from Pasadena to Huntington Park to Laguna Beach to Ventura. Since the 1920s, however, most of Southern California’s growth has focused on the automobile. For most of that time, the urban landscape of the region became more

and more attenuated and the compact centers, little by little, withered away.

By any measure, this is the biggest problem in the region. Recently, academics Reed Ewing and Rolf Pendall, along with Smart Growth advocate Don Chen, attempted to define and measure sprawl throughout the nation. Their conclusion was that sprawl has four components: low population density, a lack of diversity at the neighborhood scale, a street system that is not connected, and a lack of strong downtowns and town centers.

Surprisingly, they found that most of Southern California – especially the coastal counties – scored very well on the first three components. Population density is high and getting higher – a function partly of household size but also of the fact that the region is not characterized by low-density subdivisions. (It’s also due partly to the fact that open-space efforts are creating a de-facto urban growth boundary around the region, thus driving urban densities up.) The typical neighborhood contains a vast array of businesses and services – even if they are not always easily accessible on foot. And, thanks to superior planning in the suburban era, the idea of an interconnected street system is deeply embedded in most of the region.

Downtowns and town centers, on the other hand, are not nearly as strong here as they are elsewhere in the country. The researchers found that Orange County, for example, ranked 6th out of 83 metropolitan areas in density, 5th in street

connectivity, 13th in neighborhood mix – and 73rd in centeredness. Results for Los Angeles and Ventura County were similar. Even Riverside/San Bernardino – the most sprawling area in the nation by far, according to the study – was in the middle of the pack on density but ranked 81st out of 83 areas in centeredness.

So how do we recapture our centeredness – how do we find and strengthen those city and town cores that serve as the focal point of the region’s growth in the future? Conceptually, this isn’t hard, though the practical politics can be tricky.

We know where these centers are. They include the unparalleled collection of old suburban downtowns with which Southern California, owing the Red Car days, has been endowed. They include suburban-era centers that are quickly morphing into something more than office districts or business parks – places like Valencia Town Center, Century City, and Irvine Spectrum. And they include the old commercial strips and dead malls – the vast expanse of obsolete retail land so vital in the 1950s or ‘60s but unable to compete today with Nordstrom or Wal-Mart.

The “how” is obvious as well. The problem of centeredness is not particularly a problem of office or retail space or even industrial land – at least not in Southern California, where

most of these activities are already crammed together in close proximity to one another. The problem of centeredness is, in a word, a problem of housing. And this requires nothing less than a revolution in the way we think about how our communities are constructed.

There’s a general consensus in the U.S. that housing is the key to social stability and – extremely important given the region’s vast working class – it’s one of the keys to upward mobility as well. But in Southern California, it’s also the key to “centeredness”.

The most important reason for this, of course, is that the vast majority of urban land – up to 70% in many cases – is used for housing. A region can be sprawling or not. It can be auto-oriented or focused, at least in some locations, on a transit system. It can have strong centers or not. But whatever this form is, it depends in large part on what type of housing is built and how it is distributed across the landscape.

Housing is important for another reason too: It is the hottest sector in the real estate development market right now. Yes, house prices have finally flatlined after four years of astronomical increases. But the pent-up demand is still strong, and the apparently permanent inflation in prices has changed everybody’s pro-forma. Developers and urban landowners who were looking at office towers 15 years ago





and entertainment retail seven years ago are now looking at small-lot single-family subdivisions, townhomes, and condominiums.

Housing starts throughout California were slow in the '90s, but they have been on the rise rapidly since 2000. And although the single-family figure statewide has remained constant at 74%, multifamily construction has increased rapidly in the land-starved coastal areas of Southern California, especially Los Angeles and Orange counties. In L.A. County, multifamily projects constituted 10% of the net housing increase during the 1990s; according to Department of Finance estimates, that figure rose to 50% for the years 2000-2003. In Orange County, the multi-family figure rose from 13% to 32%.

These figures do not mean that the huge single-family housing market in Southern California has vanished. Mostly, it has

moved inland – especially to the blazing Riverside County market, where single-family detached homes have accounted for almost 90% of housing starts in the last four years – up from 81% during the '90s. In fact, from 2000 through 2003, Riverside County produced 66,000 single-family homes – twice as many as any other county in all of California.

But these statistics do mean that more and more people are choosing to live in townhomes, apartments, and condominiums in crowded and expensive urban areas – sometimes out of economic necessity, sometimes to avoid a wearying commute, and sometimes even as a lifestyle choice.

One of these people is me. After 16 years of living in a typical suburban '60s tract, I have now lived for about a year in historic downtown Ventura. It's been quite a transition. One of the things I often say when I give speeches about how Southern California is changing is that, over time, people are going to have to acclimate themselves to a more urban lifestyle – something that many suburbanites can't even visualize.

So I'm trying. But it's not all upside. I love easy access to transit but I have a hard time sleeping when the buses start rumbling by at about 5:30 a.m. every day. The police visit my block every once in a while, and the homeless wander by on a regular basis. I have already lost a beloved dog to a traffic accident that probably wouldn't have occurred in a more quiet suburban setting. And I'm still getting used to the idea that

my 14-year-old daughter can just yell, “See ya!” and be off to some store or shop on her own.

But I can walk to my local farmers’ market, and the 10-screen movie theater is just past the library. Even my elected responsibilities are only four blocks away at City Hall. Sometimes a couple of days pass without me getting in my car, and I don’t even notice it. And, of course, the skittishness in letting my daughter out into the world on her own is only part of the equation. I also have a sense of both relief and pride that she can gradually learn to navigate the world on her own, little by little – rather than all at once when I hand her the car keys.

These are the benefits a more urban lifestyle confers. They’re not, from a suburban way of thinking, conventional benefits; in fact, many people would probably not consider them to be benefits at all. But they represent something different – and they are benefits not just to me, but to the community and even the entire region.

Of course, simply building higher-density housing willy-nilly will not, in and of itself, provide these benefits. Part of the “2% Strategy” is not just confining new growth to 2% of the land, but knowing which 2% to focus on. And this is the revolutionary part, because traditional downtowns and town centers – even the beloved small suburban centers of Southern

California – were not traditional places where people lived.

As MIT professor Robert Fogelson points out in his excellent recent book *Downtown*, the emergence of the American downtown between 1880 and 1920 was based on the opposite premise: that a downtown was exclusively a business district where nobody lived. Businesses were centralized in downtown, while residents were dispersed in suburban districts. There may have been flophouses and declining working-class districts on the outskirts, but in order to gather the vast number of people required as workers and shoppers, downtowns depended not on local housing but on modern transportation systems, especially trolleys.

So when we talk these days about creating vibrant town centers by building housing, we are not talking about the way things used to be. We are talking about a revolution — inserting housing into districts that, historically, were used exclusively for offices and stores.

Sometimes the process of revitalizing a retail downtown in a traditional way can morph, oddly, into the creation of a town center focused around housing. The revival of Old Town Pasadena began, 20 years ago, as an effort to revive a deteriorated retail district by leveraging off of strategically positioned parking garages. Though Pasadena’s rich history, its location in the metropolitan area, and its stock of



commercial buildings from the 1920s were considerable assets, the reality of the early 1980s was far from appealing. (I well recall visiting pioneering developer John Wilson in 1985 and enduring cracked windows and the smell of urine while venturing up to his spectacularly appointed condominium.)

Now the, auto-oriented retail success of Old Town Pasadena has evolved, improbably enough, into a second wave of urban renaissance that is focused on transit-oriented housing. Old Town became such a compelling destination that a housing market emerged, driven at least partly by the construction of the Gold Line light-rail system. Now the commercial buildings of the '20s and the civic masterpieces of the City Beautiful era are punctuated by such 21st Century wonders as apartments built on top of a '70s shopping mall and condominiums constructed, quite literally, over the tracks of a light-rail station.

If the 2% Strategy is going to succeed, these are the kinds of places we have to focus on. Densifying 2% of the region won't do any good if it's just any 2% -- that is, whatever 2% of the land that developers happen to gain control of and think they see a market for. We have to target the 2% of the land that includes places that can serve as true focal points -- can accommodate more growth -- and can use that growth to shape a different and more urban kind of place.

There are many of these locations in Southern California -- and, indeed, many more than there used to be. There are not only the old downtowns everywhere, but also the evolving

shopping centers and commercial strips in places like north Orange County -- located in neighborhoods both rich and poor which are clearly on the cusp of change. There are new transit nodes in places like Hollywood, which, because of transit construction, have an entirely different kind of capacity for growth than they used to. There are emerging regional centers such as Valencia Town Center, where a new downtown has been invented out of whole cloth.

If there is one other lesson from Envision Utah and other recent regional planning efforts, however, it is the challenge of implementation. For local elected officials, moving chips around on a big map of the region does not readily translate into downzoning Joe Blow's property on a Monday night to protect open space, or upzoning land in a promising center when you are confronted with a group of angry neighbors.

And herein lies a risk -- a risk that Southern California's new more urban lifestyle, focused around new development in the region's vibrant centers, will somehow be maldistributed across the landscape. It seems likely, for example, that densification will occur mostly in two types of locations.

The first is the affluent area -- already somewhat dense -- where the economics of densification are so overpowering that developers will conclude that it is well worth fighting all the political fights to get a project through. This is the story of Pasadena, of the Westside of Los Angeles or Santa Monica, or the beach towns in Orange County.

The second is the working-class town that is already being overwhelmed by population growth – the older suburbs of southern L.A. and north Orange County, and in the sliver of land in between the 10 and 60 Freeways in the San Gabriel Valley. In these towns, the usual political opposition to more housing dissipates somewhat, because local politicians can see they are getting the people whether the houses are built or not.

The hard part, as always, is the batch of small affluent suburbs capable of putting both money and political power behind resisting growth. These towns are usually the flashpoints of regional growth debate – and, in particular, the pockets of resistance to the Regional Housing Needs Assessment process. The political reality is that growth will be distributed based on the mixture of political tolerance and economic pressure.

But the 2% Strategy holds the potential to move beyond the stalemate, especially if it focuses on locations that have true potential to become transit-oriented centers. A few of the centers are located in the pockets of resistance, but not many. Most are located in exactly the places where growth is flowing anyway – the affluent areas where the political battle is worth it to the developers and the working-class locations where the population is growing. The 2% Strategy will work if we let

growth flow where political and economic forces are driving it anyway, but focus it tightly on centers that hold the potential for truly urban living.

Believe it or not, the political equation inherent in this strategy may actually work. As I stated earlier, the political climate about housing is changing in many Southern California communities – especially those places that are getting population growth whether they build housing or not. In those communities, young elected officials are building political careers on the idea of building more housing, not less – something that would have seemed like a political loser almost everywhere a decade ago. And, surprisingly, many slow-growthers have some sympathy for this idea as well. They see the need for more housing; they see that if it's not built at high densities it won't be affordable – and they understand that if it is built in centers that means it won't be built in their neighborhoods.

Thirty years ago, when Southern California seemed mired in an endless struggle over how to be well-planned and low-density at the same time, the visionary L.A. City Planning Director Calvin Hamilton understood both the elegance of this solution and its political power. He called the idea “the centers concept.” The idea was to focus most development into compact nodes that would revolve high-density residences and office/retail centers.



In the process, the city would protect the vast areas of single-family homes where longtime residents lived – and where the political clout of slow-growthers was based.

Hamilton’s vision didn’t survive the rough-and-tumble politics of 1980s Los Angeles, when developers used political muscle to create new nodes in less than optimum locations – causing the slow-growthers to lose faith in the planning process.

But now it’s 20 years later. Southern California is much more crowded and expensive, and we have learned a great deal about what it takes to actually implement some of these great ideas. Envision Utah, for example, isn’t a government agency. Rather, it is a regional nonprofit civic group dedicated to crafting a regional plan and then advocating for its implementation. Implementation in Salt Lake City has not always been easy, but Envision has taken the innovative step of funding pilot implementation projects. It’s now a permanent organization that is trying to oversee, prod, and push in the years ahead.

Similarly, the Housing Action Coalition – an offshoot of the Silicon Valley Manufacturers Group – is an example of a regional business advocacy group that has played an important role in implementing

a similar solution in the San Jose area. Initially focusing on just two criteria – high density and transit proximity – the group has been successful in advocating for housing projects largely because it is made up of regular business leaders, not developers.

So there are ways to make the 2% Strategy work: Focus on housing. Focus tightly on centers and other locations where opportunity exists. Don’t let opportunistic developers shift the focus to land elsewhere that they happen to own. And work with a wide variety of partners – including the business community, not just the real estate folks – to lobby for implementation. Government can’t get the job done by itself, and in the past similar ideas – such as the centers concept – have been derailed by short-term political manipulation. But the dynamics of growth in Southern California have changed so much that maybe this time the 2% Strategy will work.

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# Transportation



# 2004

The region experienced an increase in the share of drive-alone commuting as well as in highway fatalities.

# Transportation

## Highway Use and Congestion

### WHY IS THIS IMPORTANT?

Highway congestion causes delays affecting personal mobility and goods movement and results in increased economic and social costs. In addition, congestion impacts the region's air quality. The number of vehicle miles traveled (VMT) indicates the overall level of highway and automobile usage, and is directly related to mobile source emissions.

### HOW ARE WE DOING?

*Between 1992 and 2002, the SCAG region (particularly Los Angeles and Orange counties) consistently ranked as the most congested metropolitan region in the nation. Congestion level is measured by indicators such as travel time or annual delay per traveler. For example, in 2002, a traveler in Los Angeles/Orange counties during the peak period spent 77 percent more time than if traveling at free-flow speed (Figure 41).*

At 1.77 in 2002, the travel time index of Los Angeles/Orange counties was the highest among the major metropolitan areas in the nation. The San Francisco Bay Area had the second highest at 1.55. Riverside/San Bernardino counties, with an index of 1.39 in 2002, ranked 7th highest among major metropolitan areas.

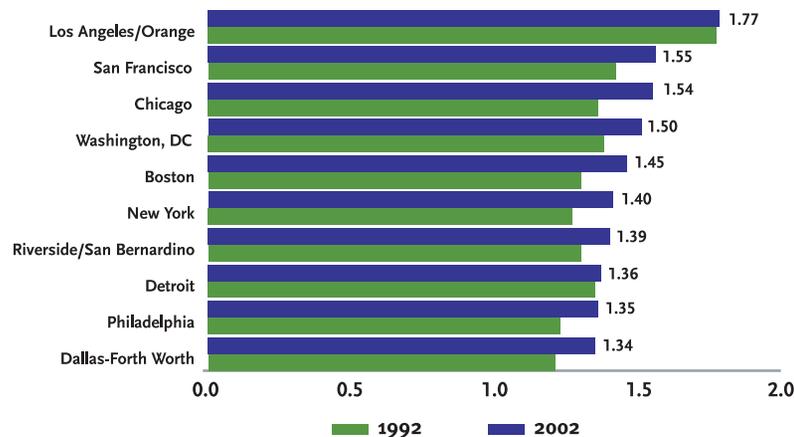
Though Los Angeles/Orange counties had the nation's highest congestion level, their travel time index increased little between 1992 and 2002, while other metropolitan areas experienced much larger increases in congestion levels. During this period, the travel time index in Los Angeles/Orange counties rose very slightly from 1.76 to 1.77, while it increased from 1.41 to 1.55 in San Francisco and from 1.35 to 1.54 in Chicago. Significant investment in transit (e.g. the Red Line and light rails) and HOV system between 1992 and 2002 contributed to holding the congestion level in Los Angeles and Orange counties. The travel time index in Riverside/San Bernardino counties increased from 1.29 to 1.39 during the 10-year period.



In 2002, a traveler in Los Angeles/Orange counties during the peak period experienced a total of 93 hours of delay, again the highest among the major metropolitan areas in the nation. A traveler in Riverside/San Bernardino counties experienced a total of 57 hours of delay, the 5th highest among major metropolitan areas (see Figure 78 page 112). In addition, total cost incurred due to congestion in the SCAG region was more than \$12 billion in 2002, significantly higher than any other metropolitan region (see Figure 79 page 112).

In 2003, total daily vehicle miles traveled (VMT) in the region reached over 414 million, which was only slightly higher (0.3 percent) than in 2002.<sup>1</sup> In 2003, more than 26 million VMT was from trucks. By 2030, truck VMT in the region is projected to almost double from its 2003 level. Examples of freeways with heavy truck traffic include the I-710, SR-60 and I-15.

**Figure 41**  
**Travel Time Index by Metropolitan Area**



Since 2000, daily VMT increased only about 4.5 percent, less than the 6 percent increase in population. Between 1990 and 2000, total VMT increased about 13 percent, a sharp decline from the 71 percent growth during the 1980s.<sup>2</sup> The rate of VMT increase since 2000 was comparable to that during the 1990s. One factor that contributed to the recent slower growth of total VMT is the decline of automobile ownership rates, contrary to the increasing trend at the national level. For example, between 1991 and 2001, the number of vehicles per licensed driver declined throughout the region while it increased nationally.<sup>3</sup>

About half of the daily VMT took place on the region's freeway system, and the other half on the arterial system.<sup>4</sup> Peak period congestion on the arterial street system occurs generally in the vicinity of activity centers, at bottleneck intersections, and near many freeway interchanges.

\* Travel time index is the ratio of peak period travel time to free flow travel time.  
 Source: Texas Transportation Institute

As to distribution of trips during the day, the afternoon peak period (3 p.m. to 7 p.m.) had the heaviest concentrated travel, 30 percent of total daily trips. The morning peak period (6 a.m. to 9 a.m.) accounted for 22 percent of total daily trips. As to the distribution of vehicle (driver) trips by purpose in the region, about 27 percent were home-work trips and 14 percent were home-shop trips. Home-other trips accounted for about one-third of total vehicle trips. The remaining one quarter of vehicle trips consisted of other-work and other-other trips. The distribution of trips during the day and by purpose were quite consistent across counties in the region.<sup>5</sup>

The amount of travel people do and the way they travel are strongly related to the availability of personal vehicles in their households. Persons in households without a vehicle tend to make fewer trips and travel shorter distances each year than people in households with at least one vehicle available. Specifically, persons in households without a vehicle traveled less than half of the person-miles traveled by those in households with at least one vehicle. About a third of households in the region had one personal vehicle for use in 2003. Another 37 percent of households had two vehicles and close to 21 percent had three or more. However, close to 9 percent of households (463,000) had no vehicle available for use. Very low income households with less than \$25,000 are much more likely not to have a vehicle compared to those with higher incomes. Within the region, Ventura County had the most vehicles per household (1.97) while Los Angeles County had the least (1.58).<sup>6</sup>

## Highway Fatalities

### WHY IS IT IMPORTANT?

Transportation accidents are the ninth leading cause of death in the United States. Highway accident fatalities, about 42,600 deaths in 2003, account for about 95 percent of transportation-related deaths. Highway accidents are the leading cause of death for people between the ages of 4 and 33.<sup>7</sup> Highway accidents also accounted for close to half of the total annual delay from the region's highway system.

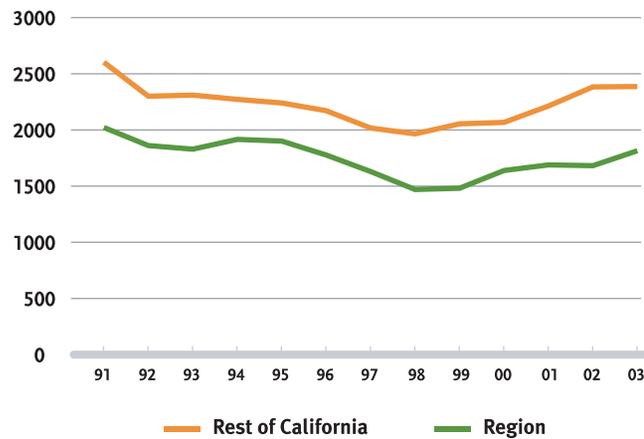
### HOW ARE WE DOING?

*In 2003, motor vehicle crashes in the region resulted in 1,815 fatalities (almost 5 deaths per day), the highest since 1995 (Figure 42). This was a significant increase (8 percent) from the 1,682 fatalities in 2002. For the rest of California, there was almost no increase in the number of highway fatalities between 2002 and 2003. At the national level, total number of highway fatalities actually decreased from 43,005 deaths in 2002 to 42,643 deaths in 2003, about a 1 percent decline.*

Since the passage in 1992 of the state law requiring seat belt use, the number of highway fatalities in the region had been generally declining till 1998, achieving a 27 percent reduction (or almost 400 fewer deaths) during the period. However, since 1998 the number of fatalities in the region has seen an upward trend.

In 2003, according to statewide data, about half of the fatal collisions were caused by drunk driving or involving alcohol. Also among the total fatalities, about 47 percent of victims did not wear seatbelts. Close to 80 percent of highway fatalities involved occupants of passenger cars and light trucks. The remaining fatalities included primarily pedestrians, motorcyclists, bicyclists and large truck occupants.

**Figure 42**  
**Highway Accident Fatalities**



Source: California Highway Patrol with 2003 preliminary data

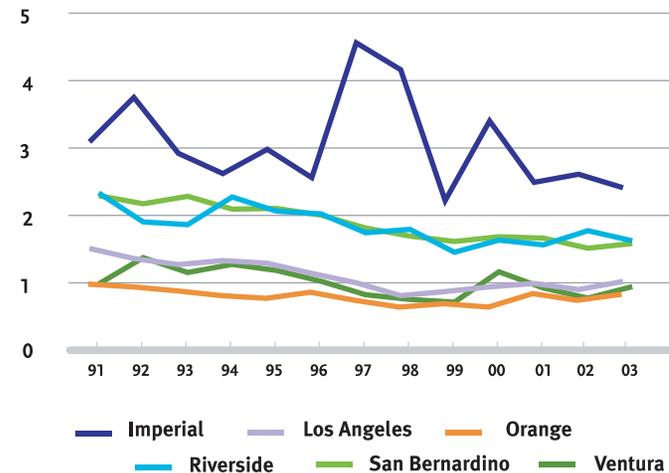
With respect to highway fatality rates, the six counties in the region were in three distinct groups. Imperial County has consistently had the highest highway fatality rates partly due to its also having the fastest average speed. The Inland Empire (Riverside and San Bernardino) counties shared similar



fatality rates, though lower than Imperial County's. Finally, the three coastal counties (Los Angeles, Ventura and Orange) also share similar fatality rates. Partly due to congestion and lower average speed, theirs were lower than the fatality rate for the Inland Empire.

Between 2002 and 2003, highway fatality rates increased in Los Angeles, Orange, San Bernardino and Ventura counties while decreasing in Imperial and Riverside counties. (Figure 43). In 2003, the region's highway accident fatality rate at 1.2 persons per 100 million vehicle miles traveled was significantly higher than the national average (0.94 persons per 100 million vehicle miles traveled) for urban areas.<sup>8</sup> The highway fatality rate in the region in 2003 was also the highest since 1997.

**Figure 43**  
**Highway Accident Fatalities**  
**(Per 100 Million Vehicle Miles Traveled)**



Source: California Highway Patrol  
\* 2003 data is provisional

## Transit Use and Performance

### WHY IS THIS IMPORTANT?

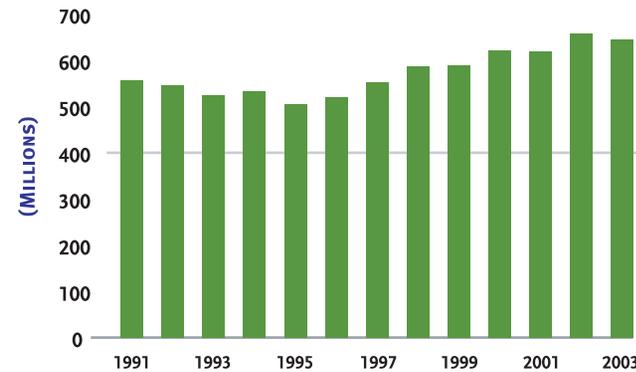
Use of public transit helps to improve congestion problems and air quality and decrease energy consumption. Reliable and safe transit services are essential for many residents to participate in economic, social and cultural life in Southern California. Annual transit boardings measures transit use at the system level, while transit trips per capita provides a measure of transit use at the individual level.

### HOW ARE WE DOING?

During the fiscal year ending June 30, 2003, total transit boardings in the region reached almost 660 million based on preliminary estimates. *This represented a decline of about 2 percent from Fiscal Year 2002* (Figure 44). The decline did not include the effect of the Los Angeles County Metropolitan Transportation Authority (MTA) bus labor union strike, which resulted in 35 days without transit services in late 2003.

Among the total boardings in FY 2003, 54 percent (or 356 million) were for the MTA bus system. Almost 10 percent (or 64 million) were for the MTA rail system, including the Red, Blue and Green Lines. Between FY 2002 and FY 2003, total annual boardings declined within the MTA's bus and rail systems prior to the labor strike, from 366 million to 356

Figure 44  
Transit Boardings - All Major Operators



Source: National Transit Database and SCAG including preliminary estimates for 2003 data.

million (or 2.7 percent). During the same period, boardings for the Red Line declined from 34.6 to 31.7 million (or 9 percent), and for the Blue Line from 23.3 to 21.8 million (or 6 percent).

Within the variety of transit services, Bus Rapid Transit is an important option for improving mobility in the most urbanized parts of the region. In June 2003, two additional Bus Rapid Transit services were initiated on Florence Avenue and Van Nuys Boulevard in Los Angeles County, joining the services on Whittier/Wilshire, Ventura Boulevard, South Broadway and Vermont Avenue. In July 2003, the new Metro Gold Line also began light rail service between downtown Los Angeles and Pasadena.

On an average weekday, about 30 percent of all transit trips were home-work trips while 47 percent were home-other trips. In Imperial County, however, only 3 percent of all transit trips were home-work trips, significantly below the regional average of 30 percent. There were also variations among the six counties as to the use of transit for home-shop trips. For example, the share of transit trips for home-shop purpose was much higher in Imperial (23 percent), San Bernardino (18 percent) and Ventura (17 percent) counties than the regional average of 11 percent.<sup>9</sup>

*Transit trips per capita declined slightly from 38 in 2002 to 37 in 2003, which was still a little higher than the 1990 level of 36. The region's transit system is experiencing substantial overcrowding on a number of core urban bus routes while it has significant excess capacity on most off-peak and peripheral routes.<sup>10</sup> Transit service utilization as measured by seat miles available is generally less than 35 percent, except for the light rail with close to 60 percent utilization. To promote transit ridership, it is important to promote transit-supportive land use strategies. These include more transit-oriented development, exploring strategies to improve travel time and intercounty transit services, and pursuing innovative funding, among others.*

## Journey to Work: Travel Time

### WHY IS THIS IMPORTANT?

Though the share of work trips among total trips has been declining, work trips continue to generate disproportionately higher impacts on the regional transportation system. Work trips tend to take longer than other daily trips. In addition, commute hours are generally the period with the most traffic congestion. Accordingly, transportation investments are still influenced significantly by the nature of work trips. Finally, the choice of residential location is partly determined by the location of work and the associated journey to work.

### HOW ARE WE DOING?

*Between 2000 and 2003, average travel time to work remained almost unchanged in the region, state and nation. In 2003, average travel time to work in the region was about 28 minutes. This continued to be higher than the state (27 minutes) and national (24 minutes) averages.<sup>11</sup> In 2003, workers in Riverside County continued to have the highest average travel time to work in the region, 31 minutes.*



## Journey to Work: Mode Choices

### WHY IS THIS IMPORTANT?

Single-occupant vehicle use accounts for the highest level of land consumption among all transportation modes. It also generates the highest level of environmental, economic and social impacts. Increasing the use of alternative modes to work (e.g., carpool, transit, etc.) is critical to accommodate future growth with less environmental, economic and social impacts.

### HOW ARE WE DOING?

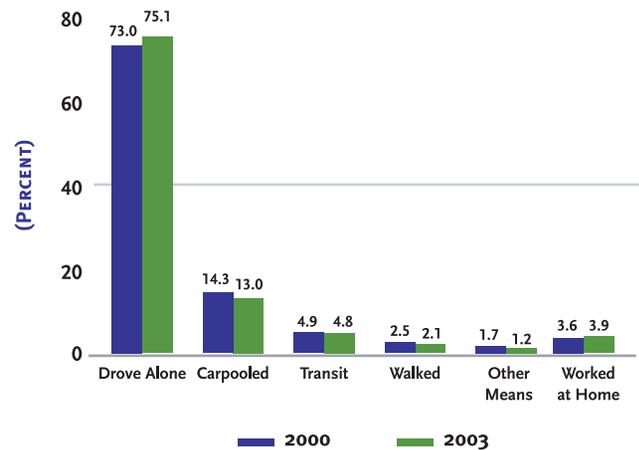
Based on the 2000 Census, among the nine largest metropolitan regions, the SCAG region had the highest rate (15 percent) of workers who carpooled to work and the third lowest rate (5 percent) for using transit to get to work. From 2000 to 2003, there was a decrease in the region's carpooling share (-1.5 percent) and an increase in the share of drive-alone commuting (2 percent) (Figure 45). This was similar to the trend at the national level though the magnitude of decline was a little larger in the region. Between 2000 and 2003, the region's share of using public transit among work trips (5 percent) remained unchanged.

Within the region, Orange County experienced the largest decline in carpooling share, dropping from 13 percent to 10 percent between 2000 and 2003. The Inland Empire

(Riverside and San Bernardino counties), however, maintained their carpool share at 16 percent, the highest in the region.

In 2003, about 3.9 percent of workers in the region worked at home instead of commuting to workplace. About half of these were self-employed and worked exclusively at home. On average, workers who worked at home were older than those working outside the home. In addition, about one-third were in professional and service industries.

Figure 45  
Mode Choice to Work  
(Workers 16 Years and Over)



Source: U.S. Census Bureau, American Community Survey

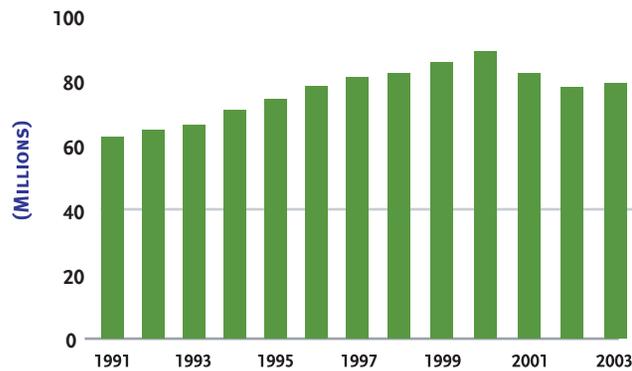
## Airports

### WHY IS THIS IMPORTANT?

Air transportation is vitally important to the regional economy of Southern California. Because of its geographical location, Southern California relies heavily on air transportation services to access and interconnect with domestic and foreign markets. For example, airborne exports accounted for about 50 percent of the total value of commodity exports out of the Los Angeles

Figure 46

Air Passenger Traffic at Major Airports



Source: Data gathered from airports

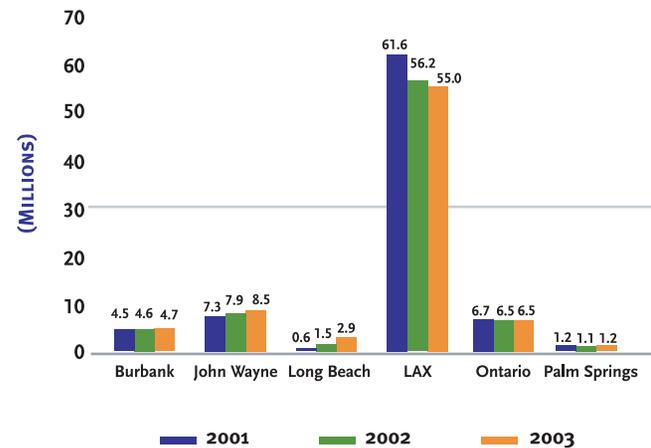
Customs District (LACD) in 2003.<sup>12</sup> Adequate aviation capacity and quality services are essential to the tourism, business, and trade sectors of the regional economy.

### HOW ARE WE DOING?

In 2003, total air passengers in the region experienced a 1.1 million increase reaching almost 79 million (Figure 46). Though the increase was very modest, it was an important

Figure 47

Air Passenger Traffic by Airport



Source: Data gathered from airports



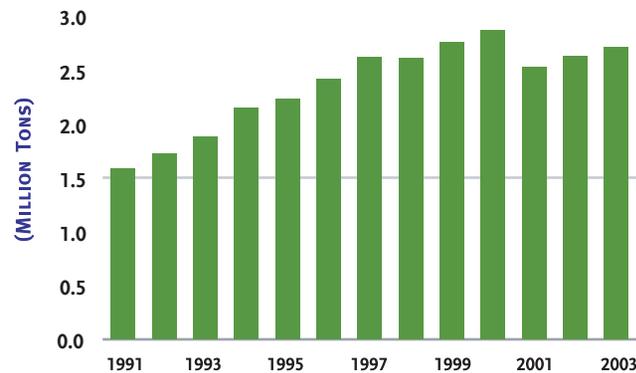
turnaround from the record losses of 11 million air passengers in 2001 and 2002 combined. Nevertheless, total air passengers in 2003 were still below the 1997 level. Among the 79 million passengers, about 64 million (or 81 percent) were domestic while 15 million (or 19 percent) were international.

Among the airports in the region, Long Beach Airport experienced the most dramatic increase of 1.4 million passengers in 2003, almost double its total from the previous year. John Wayne Airport also increased by more than 0.6 million or 13 percent. Only Los Angeles International (LAX) suffered (for the third consecutive year) a decline of 1.2 million, however, it was much less severe than the 5 million losses during 2002. (Figure 47).

Total air cargo in the region increased by 3.3 percent and reached over 2.7 million tons in 2003. This was a little less than the 3.7 percent increase during the previous year and was still significantly below the 5.4 percent average annual growth rate between 1970 and 2000 (Figure 48). Close to three-quarters of the region's air cargo traffic went through LAX while another 22 percent went through Ontario Airport. In 2003, the total increase in air cargo was almost evenly split between LAX and Ontario. By 2030, total air cargo in the region is projected to reach 8.7 million tons, more than triple its 2003 level.<sup>13</sup>

In 2003, among the ten largest airports in the world, LAX ranked 5th in passenger traffic behind Atlanta, Chicago, London and Tokyo (see Figure 80 page 113). LAX also ranked 6th in total cargo volumes following Memphis, Hong Kong, Tokyo, Anchorage and Seoul (see Figure 81 page 113). In 2003, Seoul Airport surpassed LAX to rank 5th place in total cargo volume.

Figure 48  
Air Cargo in the Six Largest Airports



Source: Data gathered from airports

## Ports

### WHY IS THIS IMPORTANT?

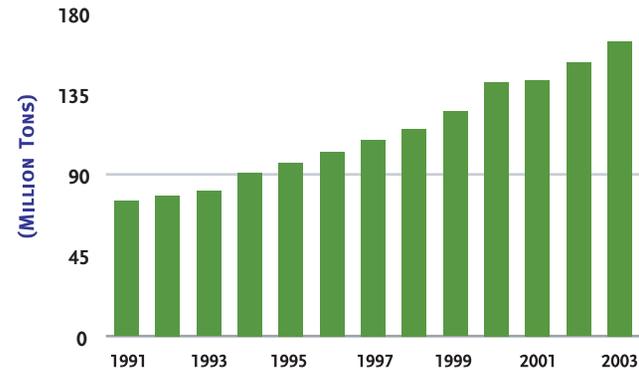
Almost 85 percent of the imports coming through the Los Angeles Customs District (LACD) arrive at the region's ports.<sup>14</sup> Continuing to provide a world-class port infrastructure is critical to sustaining a growing and prosperous regional economy.

### HOW ARE WE DOING?

Total traffic at the Ports of Los Angeles and Long Beach increased from 152.2 million tons in 2002 to 164 million tons in 2003, a 7.7 percent increase (Figure 49). Close to 86 percent of all cargo shipments at the twin-ports were through containers. Between 2002 and 2003, traffic at Port Hueneme, however, declined slightly from 3.6 to 3.4 million tons.

*In 2003, the Los Angeles/Long Beach port complex continued to rank third in the world in container traffic (11.8 million TEUs – twenty-foot equivalent units) following Hong Kong (20.4 million) and Singapore (18.1 million).<sup>15</sup> By 2025, total container traffic is projected to almost triple its 2003 level, reaching more than 30 million TEUs.<sup>16</sup>*

Figure 49  
Port Cargo at Los Angeles and Long Beach



Source: Los Angeles Economic Development Corporation

The twin-ports also maintained their dominant role among West Coast ports, attracting almost 58 percent of the total traffic in 2003. The continuing dominance of Ports of Los Angeles and Long Beach is partly due to their large regional market as well as better rail service to the Midwest and Southeast from Southern California than from other Pacific coast locations.



# The Environment



20004

Air quality worsened in 2003, particularly for ozone pollution partly due to weather conditions.

# The Environment

## Air Quality

### WHY IS THIS IMPORTANT?

Good air quality is vital for the health of residents, nature and the economy. Human health effects of air pollution can range from lung irritation to cancer and premature death. Ecological effects include damage to crops and contamination of waters. Degradations in human and ecological health often adversely impact economic well-being.

### HOW ARE WE DOING?

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features.<sup>1</sup> The SCAG region includes four air basins: South Coast, Mojave Desert, Salton Sea and South Central Coast (Ventura County portion) (see Map on page 83). The South Coast Air Basin includes an area of approximately 6,480 square miles with more than 15 million residents in 2003, about 85 percent of the region's total

population. It includes all of Orange County and the non-desert areas of Los Angeles, Riverside and San Bernardino counties. The Salton Sea and the Mojave Desert air basins have a combined area of approximately 32,200 square miles. The two basins include the desert portions of Los Angeles, Riverside and San Bernardino counties as well as Imperial County. Ventura County is part of the South Central Coast Air Basin (SCCAB). Air masses can move from basin to basin. As a result, pollutants such as ozone and particulate matter can be transported across air basin boundaries.

The U.S. Environmental Protection Agency, shortly after its creation in 1970, developed regulations targeting six "criteria" pollutants that adversely affect human health and welfare: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. Of these, the first three pollutants are regionally significant, with various parts of the SCAG region showing moderate to extreme levels of pollution. Because of their significance, this report focuses on the first three pollutants.



Air pollution consistently ranks high among public concerns in Southern California, and control efforts have been a high priority in recent decades. Despite significant improvements in the past two decades, the South Coast Air Basin still has some of the worst air quality in the nation in terms of the annual number of days exceeding federal standards.

## OZONE

Currently, all four air basins in the region are designated as non-attainment areas for ozone. Ozone is a colorless, poisonous gas. Ground level ozone is a major component of urban and regional smog. Ozone is a strong irritant, which can reduce lung function and aggravate asthma as well as lung disease. Repeated short-term ozone exposure may harm children's developing lungs and lead to reduced lung function in adulthood. In adults, ozone exposure may accelerate the natural decline in lung function as part of the normal aging process.<sup>2</sup>

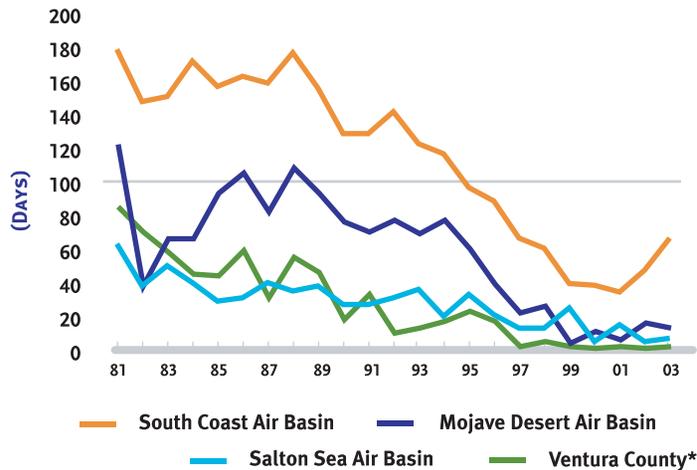
*In 2003, ozone pollution worsened significantly in the South Coast Air Basin with no major changes in the other three air basins in the region (Figure 50). In the most populous South Coast Air Basin, the number of days exceeding the federal one-hour ozone standard increased from 49 to 68 days from 2002 to 2003, more than any other air basin in the nation. This followed the increase from 36 to 49 days during the previous period. The number of days for health advisories in the South Coast Air Basin increased from 18 to 36 from 2002 to 2003.<sup>3</sup>*

*Within the region, the East San Bernardino Valley surpassed the federal one-hour ozone standard for a total of 38 days in 2003, more than any other area in the nation.<sup>4</sup> Other areas that had higher exceedances included Santa Clarita Valley (35 days), Central San Bernardino Mountains (34 days) and the Banning Airport area in Riverside County (27 days). The maximum 1-hour ozone concentration in the South Coast Air Basin also increased from 0.169 ppm (parts per million parts of air) in 2002 to 0.194 ppm in 2003, the highest since 2000.<sup>5</sup>*

It should be noted that, in the first 11 months in 2004, ozone pollution in the South Coast Air Basin improved significantly, exceeding the federal standard only 28 days compared to 64 days during the same period in 2003. Ozone is not directly emitted, but is formed when volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>) emissions react in the presence of sunlight. In both 2002 and particularly 2003, the much hotter weather associated with a persistent high-pressure system trapped ozone gases at lower altitudes and contributed to the sharp increase of ozone pollution. In 2004, much milder weather contributed to the significant reduction of ozone pollution.

Beginning in June 2005, transportation investment must conform to the new 8-hour ozone standard. In 2003, the South Coast Air Basin exceeded the federal 8-hour standard by 120 days, an increase from 99 days in 2002.

**Figure 50**  
**Ozone Pollution in Non-attainment Air Basins**  
**(Number of Days Exceeding Federal One-hour Standard)**



\* Ventura County is part of the South Central Coast Air Basin

Source: California Air Resources Board and South Coast Air Quality Management District

In the South Coast Air Basin, emissions of the ozone precursors NOx and reactive organic gases (ROG) have been decreasing since 1975. The decreases are predominantly due to motor vehicle controls and reductions in evaporative emissions. The on-road motor vehicles are the largest contributors to ozone precursors, contributing about 70 percent of NOx and 40 percent of ROG.

### PM<sub>10</sub>

PM<sub>10</sub> is particulate matter with diameter of 10 microns or smaller. Exposure to particulate matter aggravates a number of respiratory illnesses and may even cause early death in people with existing heart and lung disease. Both long-term and short-term exposure can have adverse health impacts.

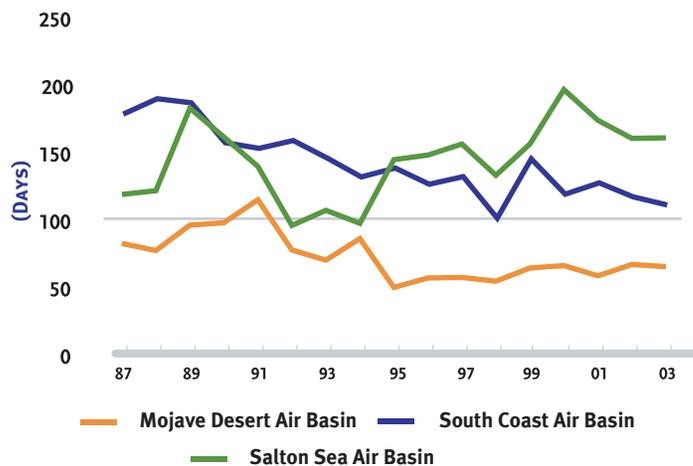
Particulate matter can be directly emitted into the air in the form of dust and soot. In addition, similar to ozone, secondary particles can be formed in the atmosphere from the reaction of gaseous precursors such as oxides of nitrogen (NOx), oxides of sulfur (SOx), reactive organic gases (ROG) and ammonia. Secondary particles are more easily formed in the atmosphere during colder winter conditions. On an annual basis, directly emitted PM<sub>10</sub> emissions contribute approximately 65 percent of the ambient PM<sub>10</sub> in the South Coast Air Basin.

Three air basins in the region have been designated as non-attainment areas for PM<sub>10</sub>, including the South Coast, Salton Sea and Mojave Desert. The annual average indicator provides a measure of long-term exposure to particulate matter that could contribute to breathing disorders, reduce lung function, and curtailed lung growth in children.

Since 1987, the South Coast Air Basin has been exceeding the Federal annual average standard of 50 ug/m<sup>3</sup> (micrograms per cubic meter of air) but with a trend toward improvement (Figure 51). In 2003, there was only a slight reduction from 2002 in the PM<sub>10</sub> annual average in the South Coast Air Basin. Exceedances of the federal annual standard in the South Coast Air Basin were confined to Riverside County with a maximum of 56.9 ug/m<sup>3</sup> (or 114 percent of the federal standard).<sup>6</sup>

In the Salton Sea Air Basin, the PM<sub>10</sub> pollution level has been fluctuating since 1987. The Salton Sea Air Basin has contained the highest level of PM<sub>10</sub> annual average within the SCAG region since 1995. In 2003, the annual average of PM<sub>10</sub> pollution in the Salton Sea Air Basin remained almost at the same level as in 2002. In the Mojave Desert Air Basin, PM<sub>10</sub> pollution level has been below the federal annual average standard since 1992.

**Figure 51**  
**PM<sub>10</sub> in Non-attainment Air Basins**  
**(Percent of Federal Annual Average Standard\*)**



\* Above 100 percent means exceeding the federal standard.  
 Also PM<sub>10</sub> condition may be impacted significantly by natural events or pollution transport.

Source: California Air Resources Board

In 2003, the number of days exceeding the federal 24-hour standard (150ug/m<sup>3</sup>) for PM<sub>10</sub> increased in all three non-attainment basins. The number of days with an unhealthy level of PM<sub>10</sub> describes the chronic extent of PM<sub>10</sub> pollution. The South Coast Air Basin exceeded the federal standard on 6 days in 2003. There had been no days of exceedance in 2002. The Salton Sea Air Basin experienced an increase from 18 to 28 days of exceeding the federal standard during the same period. The Mojave Desert exceeded the federal 24-hour standard for PM<sub>10</sub> on 8 days, an increase from 6 days from the previous year.

**Figure 52**  
**PM<sub>10</sub> Pollution in Non-attainment Air Basins**

Air Basins	Days Exceeding Federal PM <sub>10</sub> 24-hour Standard		
	2001	2002	2003
South Coast	5	0	6
Mojave Desert	0	6	8
Salton Sea	29	18	28

Source: California Air Resources Board

California state standards for PM<sub>10</sub> are significantly more stringent than federal standards due to greater consideration given to the potential health impacts. Specifically, the state annual average standard for PM<sub>10</sub> of 20 ug/m<sup>3</sup> is only 40 percent of the federal standard of 50 ug/m<sup>3</sup>. In 2003, all three non-attainment basins for PM<sub>10</sub> have continued to exceed the state standards. In addition, the state 24-hour standard for PM<sub>10</sub> of 50 ug/m<sup>3</sup> is only a third of the federal standard of 150 ug/m<sup>3</sup>. In 2003, the South Coast and Salton Sea Air Basins exceeded the state standard on 211 and 284 days respectively, while the Mojave Desert Air Basin exceeded the state standard on 18 days.<sup>7</sup>

Direct emissions of  $PM_{10}$  in the South Coast Air Basin have increased from 233 to 288 tons per day between 1975 and 2000. This is primarily because of the increase from areawide sources that increased from 140 to 233 tons per day during the 25-year period. The areawide sources include fugitive dust from paved and unpaved roads. While emission controls implemented for ozone will also benefit  $PM_{10}$ , more controls aimed specifically at reducing  $PM_{10}$  will be needed to reach attainment.

### **PM<sub>2.5</sub>**

$PM_{2.5}$  is a subgroup of finer particles within the classification of  $PM_{10}$ . They pose increased health risks because they can penetrate deeper in the lung than  $PM_{10}$  and contain substances that are particularly harmful to human health. The U.S. EPA promulgated national  $PM_{2.5}$  standards in 1997.

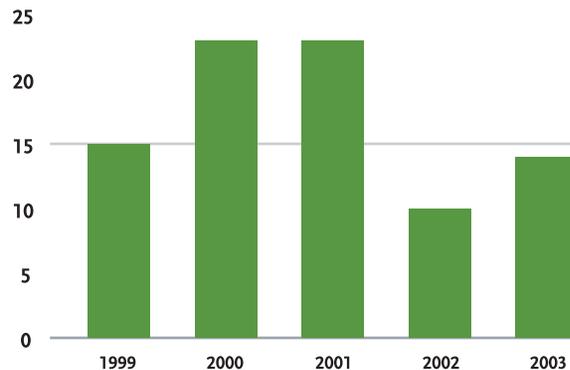
*While the annual average concentration of 24.9  $\mu\text{g}/\text{m}^3$  in the South Coast Air Basin declined in 2003 from the previous year (27.5  $\mu\text{g}/\text{m}^3$ ), it continued to far exceed the federal standards of 15  $\mu\text{g}/\text{m}^3$ .<sup>8</sup> Specifically, 12 of the 17 monitoring stations in the basin showed exceedance, ranging from coastal cities to inland valleys.*

*$PM_{2.5}$  particles on average are smaller than  $PM_{10}$  particles and are more difficult to control. In 2003, while the South Coast Air Basin exceeded the federal 24-hour standard for  $PM_{10}$  on 8 days, it exceeded the federal 24-hour standard for  $PM_{2.5}$  on 14 days, an increase from 10 days in 2002.*

$PM_{2.5}$  concentrations, like  $PM_{10}$ , were high in the inland valley areas of San Bernardino and Riverside counties. However,  $PM_{2.5}$  concentrations were also high in the metropolitan areas of Los Angeles and Orange counties. The high  $PM_{2.5}$  concentrations in these areas are mainly due to the secondary formation of smaller-sized particulate resulting from mobile and stationary source activities.

On an annual basis, directly emitted  $PM_{2.5}$  emissions contribute approximately 40 percent of the ambient  $PM_{2.5}$  in the South Coast Air Basin. Among the directly emitted  $PM_{2.5}$  emissions, close to 60 percent are from areawide sources, while 30 percent are from mobile sources and another 10 percent are from stationary sources.

**Figure 53**  
**PM<sub>2.5</sub> Pollution in the South Coast Air Basin**  
**(Number of Days Exceeding Federal 24-Hour Standard)**



Source: South Coast Air Quality Management District

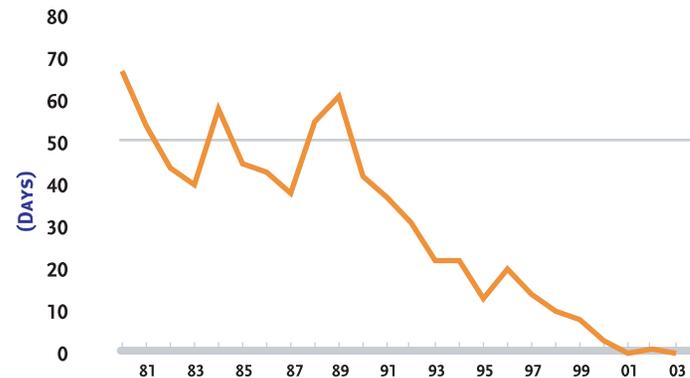
## CARBON MONOXIDE

Carbon monoxide is a colorless and odorless gas that is directly emitted as a product of combustion. Incomplete combustion will result in increased carbon monoxide emissions. Motor vehicles generate almost 85 percent of carbon monoxide emissions in the region. Since 1975, total emissions of carbon monoxide in the South Coast Air Basin have been reduced by almost 70 percent even though vehicle miles traveled have been increasing. On-road motor vehicle emission controls have been primarily responsible for this significant improvement.

Carbon monoxide impairs the ability of blood to carry oxygen. It is especially dangerous to infants, the elderly and people with heart or respiratory problems. Exposure to high levels of carbon monoxide can result in headaches, dizziness, fatigue, slow reflexes and death.

In 2002, the South Coast Air Basin met federal attainment standards for carbon monoxide (with no violation in 2001 and the one day allowable exceeding the federal standard in 2002). The basin continued to have no violation for carbon monoxide in 2003 (Figure 54). In the past two decades, peak 8-hour carbon monoxide levels also decreased in the South Coast Air Basin from 26 ppm in 1980 to 7.3 ppm in 2003.<sup>8</sup>

Figure 54  
Carbon Monoxide (CO) in the South Coast Air Basin  
(Number of Days Exceeding Federal 8-Hour Standard)



Source: South Coast Air Quality Management District

## WATER RESOURCES

### Total Water Use

#### WHY IS THIS IMPORTANT?

Water is essential to human life. With the continuing significant increase of population in the region, ensuring reliable water resources to meet demands and maintaining water quality are vital goals for all of Southern California.



## HOW ARE WE DOING?

Southern California depends on both imported and local sources to meet its demand for water. This includes imported water from the Colorado River, the State Water Project via the California Aqueduct, and eastern Sierra Nevada via the Los Angeles Aqueduct. *Together, depending on the rainfall level, imported water generally accounts for about 70 to 75 percent of the regional water supply.* The remaining 25 to 30 percent comes from local surface and ground water sources and from reclaimed water sources.<sup>9</sup> *It is important to note that available water from all three imported sources may be reduced in the future as other users and uses place greater demands on these sources.*

Within the SCAG region, the Metropolitan Water District (MWD) is the largest urban water supplier. Its service area includes close to 15 million residents in the region (Figure 55). In recent years, MWD has provided about half of the municipal, industrial and agricultural water used in its service area.

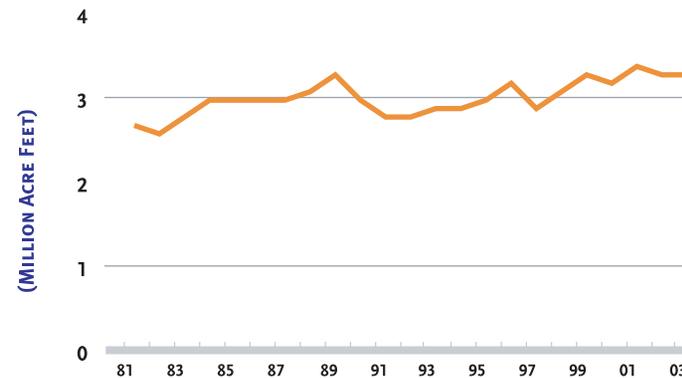
Figure 55  
Population within Water District Service Area

	MWD	Non-MWD
Imperial	0.0%	100.0%
Los Angeles	92.0%	8.0%
Orange	100.0%	0.0%
Riverside	72.1%	27.9%
San Bernardino	41.0%	59.0%
Ventura	71.6%	28.4%
REGION	85.0%	15.0%

Source: Metropolitan Water District

In 2003, total water consumption at 3.3 million acre-feet represented a 3 percent decline from 2002. The 2003 level was only slightly higher (or 1.4 percent) than the 1990 level, despite an increase of almost 2.3 million residents since 1990 (Figure 56). Within the MWD service area in the SCAG region, total water consumption did not experience significant increases for several years in the mid-1990s due to the recession, wet weather, conservation efforts, and lingering drought impacts. Of total consumption, only 7.5 percent was for agricultural purposes and the rest was for urban (municipal and industrial) uses.

Figure 56  
Total Water Consumption\*  
(Metropolitan Water District Service Area)



\* Within the SCAG region. Total water consumption includes municipal/ industrial and agricultural uses.

\*\*One acre foot equals 325,851 gallons.

Source: Metropolitan Water District with 2001, 2002, and 2003 estimates by SCAG.

While the MWD serves a significant portion of the SCAG region, many communities within the region are served by water districts outside the MWD service area. Total water consumption within the region but outside the MWD service area was estimated to be more than 4.8 million acre-feet in 2003.

The water agencies outside MWD range from relatively small to very large water suppliers. The most significant difference in water use between the MWD and non-MWD service areas is the agricultural demand for water. While less than 8 percent of all water in the MWD service area was for agricultural purposes in 2003, more than 85 percent of all water used outside the MWD area was for agricultural purposes.

In 2003, MWD opened Diamond Valley Lake, the Southland's largest reservoir with a capacity of 800,000 acre-feet. In addition, MWD gained three new partners for ground water storage, improving the region's reliability in dry years by arranging for additional storage in wet years. Finally, the Inland Feeder, a \$1.2 billion water distribution project which will nearly double MWD's water delivery capacity after its completion, is still under development.

## Per Capita Urban Water Use

### WHY IS THIS IMPORTANT?

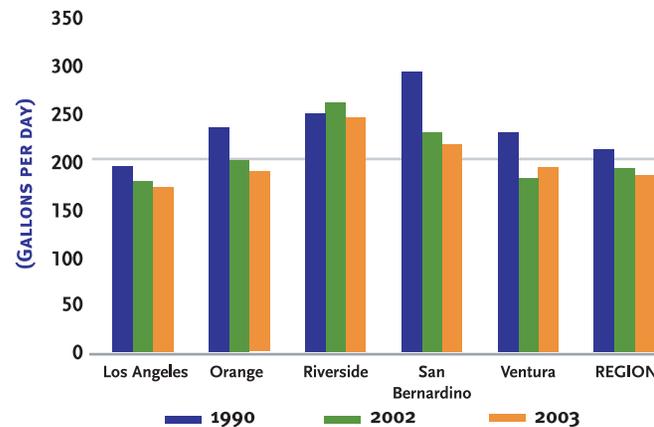
Water consumption per capita is important when looking at a city or county's growth projections in order to maintain a safe yield per person and sustain community well-being.

### HOW ARE WE DOING?

Per capita water consumption for urban uses has generally been declining since 1990. Within the MWD service area it

decreased from 210 gallons in 1990 to 191 gallons in 2002 and 183 gallons in 2003 (Figure 57). Between 2002 and 2003, per capita water consumption increased only in Ventura County while it decreased in Los Angeles, Orange, Riverside and San Bernardino counties. Urban water use includes residential, commercial, industrial, fire fighting and other uses. Hence, per capita urban water use consists of more than the amount of water used directly by an individual.

**Figure 57**  
Per Capita Urban Water Consumption\*  
(Metropolitan Water District Service Area)



\*Includes Retail Municipal and Industrial uses, not Agricultural use. Not including San Diego County.

\*\*San Bernardino's portion includes only 41% of the County's total population, significantly less than other counties.

Source: Metropolitan Water District, with 2002 and 2003 estimates by SCAG.



An important factor contributing to the overall decline in per capita urban water consumption is the development of various conservation programs and practices. These include retrofitting with water efficient technology for showerheads and toilets and changing landscaping practices toward drought tolerant plants. In addition, implementation of new water rate structure has helped suppress growth in per capita water demand.

In Southern California, much of the variation in per capita water use among counties can be attributed to climate differences. Within the region, the Inland Empire counties continued to maintain higher per capita urban water consumption rates than coastal counties. For example, in 2003, per capita urban water consumption per day in Riverside County was 243 gallons in contrast to 187 gallons in Orange County and 171 gallons in Los Angeles County.

This partly reflects higher landscape water use due to warmer and dryer climate conditions. In addition, a single family unit has higher per capita water use than a multi-family unit. The Inland Empire has much higher share (72 percent) of single-family residential units than Los Angeles County (55 percent) or Orange County (63 percent).

## Beach Closure

### WHY IS THIS IMPORTANT?

When the ocean waters off a beach contain high concentrations of certain bacteria, they become unsafe for swimming and other recreational uses. In 1999, the California Department of Health began monitoring all beaches which

have more than 50,000 annual visitors and have outflows from storm drains, rivers, or creeks. Closures or advisories are issued for beaches that fail to meet the state's standards for various sources of bacterial pollution.

### HOW ARE WE DOING?<sup>10</sup>

In 2003, due largely to bacterial contamination from unknown sources, more pollution reached coastal waters in Southern California. *Among the 97 beaches monitored in the region, the total number of beach closing/advisory days increased from 3,000 to 3,508 between 2002 and 2003.* The increase of 17 percent of beach closing/advisory days was similar to the increase at the state level during the same period, from 4,553 to 5,384, or 18 percent.

Los Angeles County experienced a record of 1,459 beach closing/advisory days in 2003, the highest among all California counties. Following Los Angeles County were Orange County (1,329 beach closing/advisory days), San Diego County (896) and Ventura County (720).

Between 2002 and 2003, the number of beach closing/advisory days in Los Angeles County jumped from 913 to 1,459, a 60 percent increase following three years of steady declines. The increase did not appear to correlate with increased rainfall or increased monitoring, but may be attributable to an on-going failure to identify and control contamination sources. Almost 97 percent of total beach closing/advisory days in the county in 2003 were due to elevated bacterial levels from unknown sources. The remaining three percent were preemptive rain advisories.

Ventura County experienced a 73 percent increase from 416 to 720 beach closing/advisory days between 2002 and 2003, after significant reductions during the previous period. Among the three coastal counties in the region, only Orange County enjoyed a reduction of beach closing/advisory days, from 1,671 to 1,329 (or -20 percent) between 2002 and 2003.

Similar to conditions in Los Angeles County, more than 90 percent of total beach closing/advisory days in Orange and Ventura counties in 2003 were due to elevated bacterial levels from unknown sources.

## Solid Waste

### WHY IS THIS IMPORTANT?

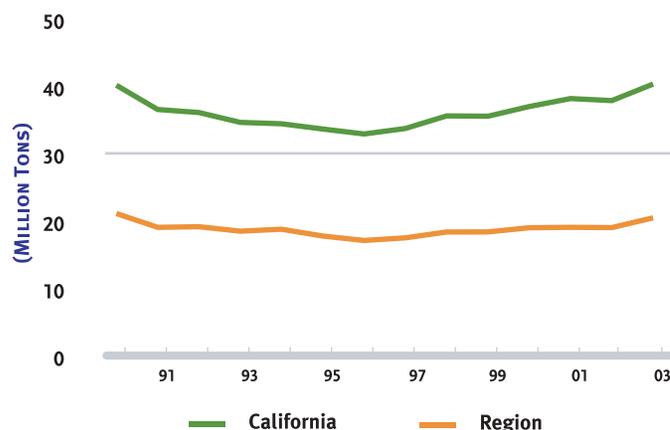
Disposing of waste in landfills is not only costly but, if not treated properly, could have dire impacts on the ecosystem and human health. For example, decomposition of waste in landfills releases methane into the atmosphere, a significant contributor to global warming. Hence, a sustainable society would minimize the amount of waste sent to landfills by reducing, recycling or reusing the waste generated as much as possible.

### HOW ARE WE DOING?

The 1989 California Integrated Waste Management Act set the goal of 50 percent diversion of each city and county's waste from landfill disposal by the year 2000. Diversion measures include

waste prevented, waste re-used, waste recycled or waste composted. Waste diversion programs such as curbside recycling pickups, greenwaste collection, and municipal composting have steadily increased the diversion rate. *At the statewide level, the diversion rate – the share of amount diverted out of the total waste generated - increased from 10 percent in 1989 to 48 percent in 2002, and dropped slightly to 47 percent in 2003.*<sup>11</sup> Increase in construction activity in 2003 contributed to the increase of disposal rate and decrease of diversion rate at the state level. Hence among the 76 million tons of waste generated in California in 2003, over 35 million tons were diverted, with almost half estimated to be from the SCAG region.

**Figure 58**  
Solid Waste Disposal at Landfills (Million Tons)



Source: California Integrated Waste Management Board

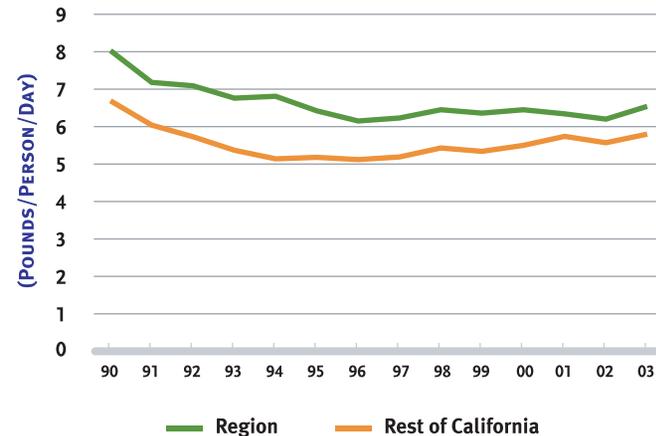


In 2003, the total amount of waste disposed to landfills in the region reached nearly 21 million tons, a higher level than any year since 1990 (Figure 58). During the 1990s, waste sent to landfills in the region declined for several years, however, it has increased gradually since 1996. This is similar to the trend at the state level.

Within the municipal waste stream, high-tech electronics are now the fastest growing component due to the widespread use of electronic instruments such as Personal Computers (PCs) and DVD players. Currently, more than 2 million tons of high-tech electronics are dumped in the nation's landfills each year, and only about 10 percent of discarded PCs are recycled. High-tech electronics contain dozens of materials, complicating separation and recycling. In addition, many of the substances are harmful to human and environmental health. The U.S. EPA estimates that discarded electronics accounts for approximately 70 percent of the heavy metals and 40 percent of the lead now found in the nation's landfills.<sup>12</sup>

Since the passage of the Waste Management Act in 1989, the region began to make progress in reducing the amount sent to landfills on a per capita basis. In 1990, the region disposed about 8 pounds of solid waste per capita per day into the landfills, slightly higher than that of the rest of the state. Various measures to implement the Act had reduced the per

**Figure 59**  
**Solid Waste Disposal at Landfills**



\* Including residential and non-residential waste disposal.

Source: California Integrated Waste Management Board,  
California Department of Finance

capita disposal rate in the region continuously to just over 6 pounds per day (or almost 25 percent) in 1996, the lowest level since 1990. However, since 1996, per capita disposal rates fluctuated between 6.1 and 6.5 pounds per day. Between 2002 and 2003, per capita disposal rate increased from 6.2 pounds to 6.5 pounds per day, continuing to be higher than that of the rest of the state (Figure 59).



# Air Quality in Southern California – Time for a Paradigm Shift

by Arthur Winer

## INTRODUCTION

As the result of an unprecedented and aggressive long-term air pollution control program for both mobile and stationary sources, the Southern California region can look back on thirty years of dramatically improved air quality and claim for itself one of the most remarkable environmental success stories anywhere in the world. Despite enormous growth – a doubling of population and a near tripling of vehicle miles traveled – the region now meets the federal air quality standards for four of the six pollutants originally regulated by the 1970 Clean Air Act, has eliminated all first, second and third stage air pollution alerts, and has reduced peak ozone levels by more than two-thirds.

These stunning achievements represent a triumph of government at every level, supported by an insistent public demand for clean air, and the sometimes reluctant but resourceful ability of business and industry to respond innovatively to stringent, technology-forcing measures adopted by the California Air Resources Board (ARB) and the South Coast Air Quality Management District (SCAQMD). The creation of the SCAQMD was itself a rare triumph of regional government in Southern California when in 1976 the counties of Los Angeles, Orange, Riverside and San Bernardino merged

into this single regional air quality agency, implicitly recognizing that air pollution did not respect political boundaries.

However, despite thirty years of impressive progress – including improved visibility, lowered concentrations of harmful gases and particles, and elimination of eye irritation – there remains the potential that continued growth in population, emission sources, and vehicle miles traveled may endanger this record. Indeed, until the 2004 smog season, with its exceptionally clean meteorology and significantly lower pollution levels, the air quality records of the preceding five years suggested that improvements in levels of ozone and other pollutants were stalling (Figure 1), and that the region faces new challenges if we are to maintain our clean-air initiatives.

Figure 1  
Ozone Pollution in the South Coast Air Basin  
(Maximum One-Hour Concentrations)



\* Federal ozone one-hour standard is 0.12 ppm

Source: California Air Resources Board

This essay discusses two main hypotheses concerning Southern California's air quality issues. First, although it is essential to continue to implement the most cost-effective clean-air technologies available, technology alone is unlikely to rescue us from the pressures of continued growth to the degree it has in the past. Instead, if long-term air quality solutions are to be found, they are likely to be more dependent on other critical regional issues, including transportation, land-use planning, smart growth, energy conservation, fuel choices, and environmental justice. Second, while it is essential to continue our efforts to address the well-understood *regional* problem of photochemical smog, we need to confront a major new air quality concern on a completely different spatial scale, namely the *highly localized* health impacts of directly-emitted vehicle emissions. These health impacts – which are not yet well recognized by regional policy-makers – are a function of traffic densities and proximity to major roadways, and will further complicate land-use, transportation, smart growth and environmental justice policies in the region. We will show that the same set of regional planning issues is inextricably bound into both of these major air pollution problems, and that a new paradigm is required to address them effectively.

We begin by presenting a summary of the growing literature on the health impacts of direct exposure to vehicle exhaust, discuss what “close proximity” to roadways means, and describe implications for

environmental justice concerns and for in-vehicle exposures. We then suggest a number of strategies for reducing exposures to vehicle emissions but also discuss the current limits of technological fixes, and the necessity for more effective transportation, land-use, and smart growth policies with respect to air quality issues. Finally, we suggest additional policy measures for improving regional air quality and note direct evidence of the benefits of further reducing exposure to vehicle emissions and to photochemical smog, and conclude with an appeal for greater cooperation between all of the relevant stakeholders.

## PROXIMITY TO VEHICLE EMISSIONS AND HUMAN HEALTH

It has been well understood for decades that smog constituents such as ozone and secondary particles, the most serious regional pollutants, are formed in the atmosphere photo-chemically from volatile organic compounds (VOC) and NO<sub>x</sub> emitted primarily from mobile sources. Recently, however, atmospheric scientists and health researchers have come to understand the critical importance to public health of motor vehicle emissions at the other end of the spatial scale – within about 650 feet (or 200 meters) of freeways and other major arterials.

Over the past decade, studies from all over the world have shown that spending time in close proximity to heavy traffic, especially diesel vehicle traffic, is associated with a wide range of health impacts, including increased mortality.



For example, a study of 700 subjects in Germany found an association between exposure to traffic and the onset of a myocardial infarction within one hour. In England and Wales, an investigation of nearly 200,000 deaths from stroke showed that men living within 650 feet of a main road had a 7% higher stroke mortality than men living more than 3000 feet away from such a road. (Studies such as these take into account factors such as socioeconomic status and age differences.) Similarly, research in Amsterdam showed a higher risk of dying from lung or heart disease for adults living within 300 feet of a freeway.

In the United States, a study in Hunts Point, New York, a small area impacted by up to 20,000 diesel trucks per week, found not only increased rates of infectious and chronic diseases but also that the death rates from pneumonia, flu and stroke were twice that of New York City as a whole. Moreover, the asthma rate at Hunts Point was reported to be the second highest in the U.S. In another New York study, in Erie County, children living within 650 feet of heavily traveled roads were almost twice as likely to be hospitalized for asthma as children living 1600 feet, or more, away from busy roads.

In 1998 diesel exhaust particulate (DEP) was declared a toxic air contaminant by the California Air Resources Board, again based on wide range of clinical and epidemiological studies from throughout the world. For example a Finnish study showed that a group of healthy volunteers who exercised intermittently and breathed diesel exhaust for one hour showed well defined pulmonary inflammatory response. Similarly, respiratory fluids drawn from traffic officers in Rome contained ten times more particles, and larger numbers of macrophages

and inflammatory cells, than samples from residents living in a relatively unpolluted town. Both a German study of infants and a Dutch study of 4,000 children concluded that children living near major roadways with heavy diesel traffic experience a higher prevalence of respiratory symptoms.

Here in the U.S., a study of subjects exposed to diesel exhaust demonstrated that even modest concentrations had clear inflammatory effects on both asthmatics and non-asthmatics. A California study of more than 2,000 children at 12 schools found a definite link between levels of black smoke, a marker for diesel trucks and buses, and both declines in lung function and increased respiratory symptoms. Investigators for this study concluded that truck traffic leads to significant health impacts to children living near major roadways.

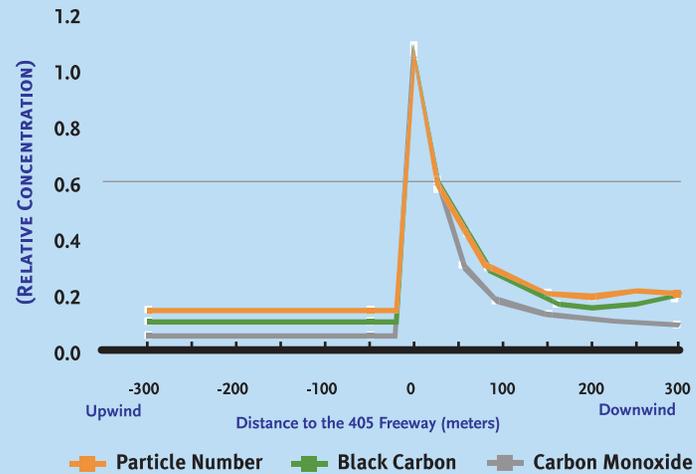
Today we are concerned about not only fine particles, but also the very smallest-or ultrafine-particles, which are so small they are capable of penetrating cell walls and the blood-brain barrier. Ultrafine particles are much less well understood but initial data show their highest concentrations occur on major roadways, and reports are accumulating about the health impacts of such particles as a function of proximity to traffic. For example, British researchers examined the respiratory fluids of 22 children from 3 months to 16 years of age scheduled to undergo elective surgery. Ultrafine particles were found in all children, but the levels in children living on busy roads were triple that of those youngsters living on quiet streets. (For an overview of additional traffic-related health effects studies see [www.healthandcleanair.org/spring2004](http://www.healthandcleanair.org/spring2004), from which some of the studies cited above were taken.)

## QUANTIFYING THE SPATIAL DIMENSION AND ITS IMPLICATIONS

Particularly over the past five years, UCLA, USC and UC Irvine researchers have moved to the forefront of research concerning highly localized impacts of vehicle emissions, for example by providing new physical evidence that vehicle-related pollutant concentrations spike at such roadways but then fall off fairly rapidly with downwind distance (under conditions of steady, moderate winds). Figure 2 shows data for black carbon, carbon monoxide and particle number obtained in 2002 by UCLA researchers for the I-405 freeway. Pollutant concentrations were low on the upwind side of the freeway, spiked upward dramatically at the freeway, and then fell to near background (or upwind) levels within about 650 feet or so of the freeway, on the downwind side. Similar results were found for the I-710 freeway. These results show clearly that locating homes, schools or other facilities within about 650 feet of major arterials can lead to elevated exposures to deleterious particles and gases for “downwind” occupants. Thus, these physical measurements of vehicle-related pollutants help explain the health effects observed in subjects living, working or attending school very close to major roadways vs those spending their time well away from major arterials.

The implications of both these recent physical measurements of pollutants levels and the accumulating health effect studies are gaining the attention of regulators and legislators. Partly in

Figure 2  
Relative Concentrations of Black Carbon,  
Carbon Monoxide, and Particle Counts Upwind and  
Downwind of the I-405 Freeway in West Los Angeles



Source: Zhu, Hinds, Kim and Siotas (2002)

response to these new findings, the California Legislature passed regulations preventing the siting of new schools in California any closer than 500 feet of a freeway. However pre-school facilities have not yet received the same attention concerning their proximity to major roadways. The proposition passed by California voters to fund the “First Five California” Initiative, an unprecedented statewide effort to ensure that all young children enter school properly prepared, is likely to lead to a rapid expansion in “pre-school” training of children ages 1-5.



It is critical to ensure that such new facilities are not built in close proximity to major roadways, and to conduct research concerning the prevalence of existing pre-school facilities close to major arterials.

The ARB recently sponsored a study session on the relationship between the location of sensitive receptors and air pollution sources. Although focused primarily on stationary source emissions and their implication for land-use, smart growth and environmental justice policies, this study session can be seen as a forerunner to similar workshops on the potential for using “distance criteria” with regard to siting new development near major roadways. The sooner such meetings bring together air quality, planning, and zoning agency representatives with developers and community advocates, to focus on mobile source emission impacts, the better.

## ENVIRONMENTAL JUSTICE

Agency officials and academic researchers are growing increasingly interested in the broader societal implications of the health and measurement studies cited above, in part because they raise serious local health disparity concerns that may be overlooked by the existing regional-scale air quality standards (AQS) “conformity” process. For instance, even though Southern California has met federal AQS for carbon monoxide and nitrogen dioxide on a regional basis, concentrations will be more elevated along heavily-traveled roadways leading to disproportionate exposure along such corridors.

Concerns that areas with high traffic densities are primarily minority and low-income have been raised by a recent California Dept. of Health Services study of traffic distribution in California that found non-white children were about three-to-four times more likely to live in areas with high traffic density than white children. Researchers at UCLA and elsewhere are attempting to quantify environmental justice aspects of the health effects findings related to proximity to traffic, in particular identifying whether the search by low-income families for affordable housing in Los Angeles, and imposition of higher roadway densities in less affluent neighborhoods, lead to disproportionate vehicle pollution impacts on minority populations. Initial analyses show that while not necessarily benefiting from freeways, due to low vehicle ownership, minority and high poverty neighborhoods in Los Angeles bear over two times the traffic density of the rest of the southern California region.

This relatively new environmental justice concern about highly localized vehicle emission impacts adds to the more traditional concerns about disproportionate impacts of stationary sources (e.g. toxic release facilities) in minority communities. Although the SCAQMD and SCAG conduct sub-regional and socioeconomic assessments of air pollution, our growing understanding of the health risks for populations near major roadways emphasizes the critical need for transportation and air quality planners to address the highly *localized* impacts of vehicle-related pollutants, particularly in the context of the environmental justice issues discussed here.

## IN-VEHICLE EXPOSURE

The demonstration of highly elevated vehicle-related pollutant concentrations on or near major roadways has profound implications not only for occupants of near-roadway homes and schools, but also for the exposure of passengers in vehicles traveling in congested conditions. Over the past 15 years research has shown that in-vehicle concentrations of exhaust pollutants are several times higher than those measured at nearby fixed site monitors and in many cases higher than measured along roadways. Recent studies in southern California with real-time instruments and “chase-car” techniques have served to quantify current in-vehicle

exposures associated with Los Angeles freeways and surface streets, especially when following diesel vehicles. One of these chase car studies, using an electric vehicle to avoid any contamination by the vehicle’s own exhaust, has shown up to ten times higher concentrations of ultrafine particles within the cabin of the chase car while driving on congested freeways compared to urban background concentrations.

A recent analysis by a UCLA doctoral student of the experimental data from another chase car study indicates that although the average person in California spends only about 1.5 hours (or 6% of a day) driving, this time spent in vehicles will typically be the most important factor in their overall daily exposure to diesel exhaust particulate, accounting for one-third to one-half of their 24 hour exposure to DEP. Table 1 shows the average concentrations of black carbon, a marker of diesel exhaust particulate matter, experienced by a passenger car occupant following various vehicles and exhaust configurations. The clear message is that traffic congestion which forces cars to follow diesel vehicles closely, especially diesel trucks and buses with low exhaust, leads to highly elevated exposures of the passenger car occupants (and that drivers should do their best to avoid driving directly behind such vehicles, particularly those emitting black smoke).

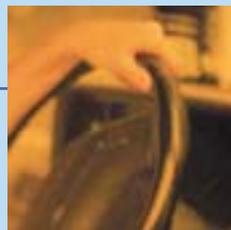
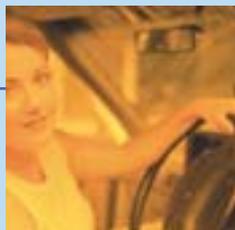


Table 1  
 Black carbon concentrations measured inside a passenger car while following various vehicles in Los Angeles. (Fruin, Winer and Rodes, 2004)

Vehicle Followed	Black Carbon Concentration Inside Vehicle ( $\mu\text{g}/\text{m}^3$ )
Gasoline Passenger Car	~5
Diesel Truck with High Exhaust	13
Diesel Truck with Low Exhaust	21
Transit Bus with Low Exhaust	90

Source: Fruin, Winer and Rodes, 2004

In the past five years, scientists have also conducted two studies of children’s exposure in diesel school buses in southern California. The most recent and comprehensive of these studies, conducted by UCLA/UC Riverside researchers, investigated not only the school bus microenvironment but also bus stops and a school loading/unloading zone. These scientists measured a wide range of particle and gaseous pollutants using real-time instruments to capture the dynamic behavior of the exhaust from nearby vehicles, as well as of the moving bus platform itself. For example, spikes in black carbon concentrations aboard the school buses, due to emissions from other school buses and from diesel trucks

traveling nearby, exceeded 40 to 50  $\mu\text{g}/\text{m}^3$ , far higher than ambient concentrations of black carbon in Los Angeles away from traffic (typically in the range of 1 or 2  $\mu\text{g}/\text{m}^3$ ).

This research also demonstrated for the first time that all of the buses studied experienced “self pollution.” That is, a portion of the exhaust from the school bus itself entered the cabin, a phenomenon generally not observed in vehicles such as passenger cars. How to minimize or eliminate self-pollution is the subject of on-going research.

Clearly, reducing children’s pollutant exposure during bus commutes is an effective way to protect their health, and cost-effective measures for achieving such reductions have been communicated to all 1700 school districts in California by the ARB, based on the recommendations from the UCLA/UCR study.

## REDUCING VEHICLE-RELATED EMISSIONS: A TRIPLE WIN

We have seen that vehicle emissions not only dominate the regional problem of photochemical smog, but also threaten the health of those living, working or schooling in close proximity to roadways, as well as all of us who spend time on congested arterials. All three of these impacts call for renewed efforts to both reduce vehicle emissions, especially diesel vehicle emissions, and the number of vehicles on roadways. Immediate and practical measures are needed. Programs to phase out the dirtiest diesel school buses must be accelerated and school bus operators should be forced to maintain bus engines to eliminate visible smoke.

The current exposures of the longest-commuting children on diesel school buses in Southern California are unacceptable. Incentives should be found to encourage more rapid turnover or retro-fitting of the dirtiest diesel trucks, especially once cleaner diesel fuels and emission control technologies become available in the next few years. Similarly, we should continue to strongly encourage conversion of commercial fleets from diesel or gasoline to natural gas, hybrid, or all electric vehicles.

Particular focus is needed on eliminating “super emitting” passenger vehicles which constitute only about 10% of the vehicle fleet but represent almost half of the emissions of carbon monoxide and VOC’s and about 90% of the particulate emissions from passenger cars.

To date the Smog Check program has failed to adequately address the problem of super-emitters (e.g. by not including the oldest vehicles), but making the Smog Check program more effective by further reducing fraud and tampering, for example, could pay big dividends. Other measures to minimize the number of high-emitting vehicles include requiring longer warranties for emission control systems, and implementing “buy and crush” programs for older vehicles. Remote-sensing technologies which can identify high-emitting vehicles are already in use in other states. California needs to seriously consider adoption of such technologies in support of Smog Check and “buy and crush” strategies. The recent decision by the legislature and governor to include the oldest



vehicles in the Smog Check program is a step in the right direction, since these vehicles are prime candidates for becoming super-emitters.

Adopting more stringent fuel economy standards, or even just enforcing the existing federal standards would be helpful. On the other hand, we should be cautious about allowing widespread introduction in Southern California of diesel engine automobiles, as is happening in Europe. We must be absolutely confident such vehicles cannot turn into high emitters of NOx and particulates as they age and/or are poorly maintained. Light-duty diesel “super-emitters” would be even more of a serious problem than gasoline super-emitters with respect to the direct health impacts of mobile sources. Finally, electrification of truck transfer stations and cargo ship docks could materially reduce emissions from these important sources.

## THE LIMITS OF TECHNICAL FIXES

Although the measures suggested in the preceding section offer practical approaches to reducing vehicle emissions, there remains a striking paucity of other technological solutions for dramatically reducing overall emissions in the region over the next 10-15 years. For example, a major criticism of the current 2003 Air Quality Management Plan, is that more than half of the emissions reductions shown to be needed to eventually meet the federal AQS for ozone and fine particles are included in a “black box” of undefined control measures. In fact, SCAQMD officials have publicly stated they have run out of viable options for further reductions in stationary source emissions, and that essentially the entire burden for further improvements in ambient air quality must fall to the ARB and mobile source controls.

But while the ARB remains the most progressive air agency in the world, it too may be running out of “silver bullets.” The ARB’s zero emissions policy foundered for lack of sufficient advancements in battery technology, and most of today’s new passenger cars are already ultra-low emitting (ULEVs) or even super ultra-low emitting (SULEVs), with little prospect for further meaningful reductions in tailpipe emissions.

Although hybrid vehicles are a welcome addition with respect to fuel economy, and may represent a bridging strategy through the “peak oil” era, in most cases (especially for “mild” hybrids) they do not offer dramatic improvements in emissions over conventional gasoline SULEVs. Moreover, market penetration of hybrids is unlikely to be more than 25% of total sales even a decade from now. The development of commercial, cost-effective and energy-saving hydrogen vehicles with significant market penetration lies even further into the future, notwithstanding current publicity about hydrogen highways.

Heavy-duty (HD) diesels, both on and off-road, as well as marine traffic and aircraft, remain among the most problematic emission sources in the basin. While gasoline vehicles and many stationary sources became much cleaner, diesel truck, marine and aircraft emissions have been much less regulated. As a result, these three types of emission sources have emerged as major contributors to regional particulate matter, as well as oxides of nitrogen (NO<sub>x</sub>) and a range of air toxics. As noted earlier, the ARB was finally able to overcome the opposition of the diesel trucking and engine manufacturing industries and declare diesel exhaust

particulates a toxic air contaminant in 1998, augmenting the federal emission control program for heavy-duty diesels commencing in 2007. However, because of the very slow turnover of HD-diesel trucks, compared with gasoline vehicles, these dirty sources are likely to be with us for a long time, unless cleaner diesel fuel and retrofit control technologies are widely adopted and prove to be exceptionally effective. Adopting these strategies aggressively is essential given the explosive growth in freight movement in the region resulting from the role of the Long Beach and Los Angeles Ports as gateways to Asian trade (as discussed later).

Given SCAG's population projections for the region – which account for recent declines in birth rate but still project robust growth – and the corresponding increase expected in vehicle numbers, it is clear we need to augment the remaining technical fixes with significant reductions in vehicle miles traveled (VMT). Thus, while the air quality agencies will find their efforts to reduce *emissions per VMT* increasingly difficult, it is transportation, smart growth and land-use strategies designed to reduce *VMT itself* that will become increasingly critical to the region's air quality program.

## TRANSPORTATION POLICIES

With respect to transportation policies to reduce motor vehicle use and their emissions, the question remains will the region



reach a point at which high fuel costs, near-gridlock congestion, and the health-effects evidence cited above begin to encourage meaningful alternatives to the automobile culture that has dominated southern California for the past sixty years? To date, of course, this has not happened. Despite three decades of transportation control measures by SCAG and other agencies, the average occupancy of passenger cars in southern California has not significantly varied from about 1.2 occupants per vehicle during that entire time. Moreover, the move to ever larger, heavier, less fuel efficient and higher-emitting SUV's and light trucks over the past decade suggests that both the public and the vehicle manufacturers still are not ready to consider a major shift in mobility options in regions like southern California. It seems likely that only sharply higher fuel costs associated with "peak oil" and the continued trend toward intolerable congestion will bring about a public demand and political will for alternatives.

In the meantime, we should pursue available transportation strategies that have the potential to reduce VMT and emissions now, including increased carpooling and vanpooling, "congestion pricing," use of smart shuttles at the community level, and introduction of so-called "intelligent transportation systems." Light rail projects offer the advantage of reduced health impacts from both regional and local air pollution, and such projects should be encouraged where present or future densities make subsidized rail transit reasonable.



For most of the region, however, given relatively low population densities and the enormous geographical extent of Southern California, bus service utilizing CNG buses remains the most cost-effective and air quality-beneficial alternative to automobiles. But such service needs to be enhanced if it is to be more widely used, including coordinating services across various local providers, wider adoption of express lanes, and continuing to modernize and expand the bus fleet. More effective leadership and successful models are needed in pursuing these air quality/transportation strategies and such models can be found in many European cities. Closer to home, much can be learned from Portland's effective use of a sophisticated mix of integrated transportation and land-use strategies. Which brings us to the intersection of air quality and smart growth/land use policies here in Southern California.

## SMART GROWTH IMPLICATIONS

Any strategy that meaningfully reduces VMT should be supported and encouraged. Key features of the smart growth movement – creating housing next to jobs and services, using mass transit hubs as foci for residential housing, and otherwise reducing dependence on the automobile – have the potential to reduce trips, especially the all-important “cold starts” which account for most of a gasoline vehicle's emissions for a typical city trip. However, an important implication of the health effects and measurement research cited above is the tradeoffs that must be weighed in proceeding with smart growth strategies such as mixed-used and infill development. For example, we must be careful to avoid promoting higher housing densities in immediate proximity to freeways and other heavily traveled arterials or we risk offsetting the gains from fewer trips with greater exposure to vehicle exhaust.

Smart growth strategies must also take into account that mixed-use patterns that place housing above or immediately adjacent to commercial, industrial, or retail businesses run the risk of impacting residents with toxic air emissions. Obvious examples are dry cleaners still using perchloroethylene, restaurants that are sources of fine and ultrafine particles (especially fast food restaurants relying heavily on frying), gasoline stations, and small industrial sources of VOC, heavy metals or other air toxics. Fortunately both the ARB and SCAQMD are beginning to interact with planners, zoning agencies, developers and community advocates to address these concerns.

## LAND-USE IMPLICATIONS: BUILDING BUFFERS

Our new understanding of the near-proximity health impacts of vehicle exhaust also has implications for land-use policies in the region's transportation corridors, namely the need for buffers along major roadways, especially freeways, to prevent housing, schools and child-care facilities from locating within about 650 feet. Of course this can only complicate transportation strategies based on widening freeways, or creating entirely new roadways, and can also impact the critical need for affordable housing by the less affluent. A key policy question is what alternatives can be found if – based on public health concerns – the comparatively affordable housing immediately adjacent to freeways were to be eventually eliminated, and what would be the overall trade-offs in terms of the health and welfare of affected populations? In large portions of the Inland Empire and Orange County, for example, it is middle class housing that is likely to be affected, as well as less affluent housing. More research is needed on who lives along the major roadways of the region, and on the social and economic implications of restricting future housing development within buffers of about 650 feet of such arterials. All of this pre-supposes that regulatory mechanisms can be found – in the face of private property and local community control issues – that would permit future land-use policies to



restrict development within appropriate buffers along major arterials. The issues of compensation and the legality of removing land from development in these buffers, or even eventually removing existing, loom large and require attention.

## REDUCING PHOTOCHEMICAL SMOG

It is important to emphasize that the strategies discussed above to reduce VMT and per vehicle emissions, thereby reducing *near-proximity* exposures to vehicle exhaust, will also benefit the *regional* photochemical smog problem. Vehicles remain the dominant source of most of the criteria pollutants and reducing such emissions is ultimately critical to bringing the entire region into conformity with the new and more stringent federal air quality standards for ozone and PM<sub>2.5</sub>. However, more can be done, beyond the measures cited above for reducing motor vehicle emissions.

Greater cooperation and coordination is needed between the SCAQMD and Los Angeles/Long Beach port officials. The current tensions between these agencies needs to be replaced by a much closer scrutiny of the regional air quality impacts of the proposed dramatic expansion of the ports – especially given that the ports are now the single largest stationary source in the basin for several key pollutants. Both the ARB and the SCAQMD must continue to press the EPA for greater regulatory control of aircraft and marine emissions, and



quantify more accurately the cumulative emissions from all airport activities within the South Coast Air Basin.

Other strategies not involved with exhaust emissions but which might make meaningful contributions to reducing regional smog include addressing more effectively faulty vapor recovery systems at gas stations, mandating portable gasoline containers that trap evaporative emissions, and continuing efforts to educate consumers not to top off their tanks during refueling or to spill gasoline accidentally.

## BENEFITS

A number of modeling studies have shown that meeting the federal AQS would be a net benefit economically, in terms of reduced mortality, fewer lost work days, less hospital admissions, and lower overall medical costs for respiratory illnesses. However, demonstrating experimentally the *direct* health benefits of reducing VMT and vehicle

emissions is more difficult since most emission control programs phase in over long periods of time. Fortunately, we now have data from the 1996 Olympic Games in Atlanta that quantify and support anecdotal evidence from the Los Angeles Olympics. Analysis of data from the 1984 Olympics in LA suggested that even with only a 10% reduction in daily trips, traffic flowed more freely and air quality improved significantly in southern California.

During the 17 days of the Atlanta Olympic games, residents responded strongly to pleas that they leave their cars at home and take the bus. As a result traffic congestion all but disappeared on the major roadways (away from Olympic venues) and concentrations of traffic-related pollutants fell by up to 50% from levels predicted by air quality models for normal traffic densities. An immediate effect was seen in emergency rooms where during the 17 days of reduced traffic, acute care visits for asthma fell by more than 40%. A drop of about 10% was seen in visits for acute asthma attacks in emergency pediatric departments. This “inadvertent” experiment in Atlanta, and earlier in southern California, shows clearly the immediate health benefits of reducing vehicle trips and the corresponding vehicle-related pollutant emissions, and bolsters the traffic-related health effects studies cited earlier.

Beyond the direct improvements in the health of millions of children and adults, many other social, environmental and economic benefits accrue from reducing VMT and vehicle emissions, as well as from improving fuel economy. Examples include lower fuel expenditures, less dependence on foreign energy sources, reductions in greenhouse gas emissions, and less congestion and lost productivity.

## CONCLUSION

This essay has documented that the air pollution problems of Southern California manifest themselves at two distinct spatial scales: the well recognized regional photochemical smog problem, and the currently less-well understood highly localized impacts of vehicle emissions (especially from diesel vehicles) immediately adjacent to and on major roadways. Addressing both types of air quality impacts raises new challenges for government, the private sector and the public.

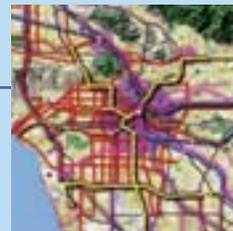
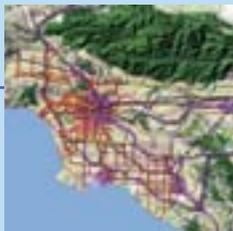
Unless a new arsenal of effective emission control programs can be developed, including for the first time addressing marine and aircraft emissions in a meaningful way, growth in the region may prevent us from ever reaching the more stringent health-based ambient air quality standards for ozone and particulate matter promulgated by EPA in 1997. At the other spatial scale, the challenge over time is to develop buffers along major roadways in order to minimize direct exposure to vehicle exhaust. Both challenges argue for pursuing strategies that offer viable alternatives to the automobile, encourage more rapid transition to cleaner diesel vehicles of all kinds, and provide greater collaboration between policy-making agencies in the region.

Once again the Southern California region has an opportunity to provide leadership to the rest of the nation and to be a model for

other mega-cities around the world, most of which are struggling with serious air quality problems and many of the same infrastructure and planning impediments as found here. The decisions made over the next ten years will determine whether southern California continues to be a world leader in responding to the full range of air pollution issues identified in this essay, or a symbol of the failure of regional policies to address the critical interconnection of air quality, transportation and land-use policies at the mega-city level.

Nothing less than a paradigm shift is required, in which urban planners, transportation experts and air quality specialists, as well as the private sector and those concerned with environmental justice at the community level, come together to develop integrated approaches that can be effectively implemented to protect public health. As emphasized repeatedly in this essay, these approaches must address the problem at both spatial scales: the regional smog problem, and the immediate impacts of vehicle exhaust on commuters and those living, working or schooling in close proximity to major roadways. The time to begin this paradigm shift is now.

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# The Quality of Life



# 2004

The region achieved continuing improvement in reducing violent crime rates. However, there continued to be little improvement in student performance.

# Quality of Life

## Education

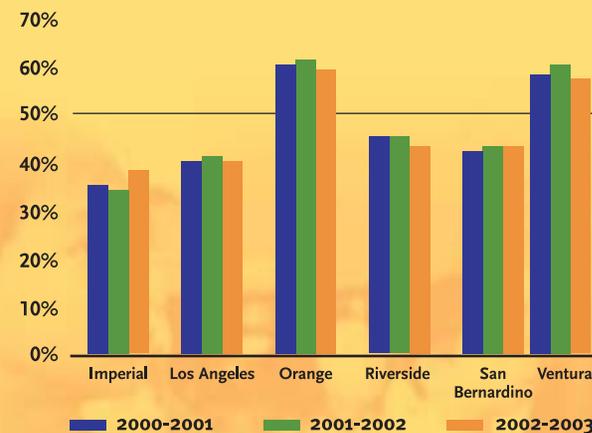
### WHY IS THIS IMPORTANT?

Student performance is measured through three indicators: 1) test scores for eighth grade, 2) high school dropout rates, and 3) percent of high school graduates completing courses required for the University of California (UC) or California State University (CSU) entrance. High school dropouts are severely disadvantaged in competing for quality jobs. Performance on the last indicator reflects the potential level of success in pursuing college education by high school graduates.

### HOW ARE WE DOING?

In 2003, the 8th graders (graduating class of middle schools) in the region continued to perform below the national median in reading and math test scores except in Orange and Ventura counties (Figures 60 and 61). Between 2002 and 2003, there were noticeable declines in reading scores throughout the region relative to the nation. There were no major changes in math scores.

**Figure 60**  
**Math Test Scores for 8th Grade**  
(Percent above National Median Score)\*

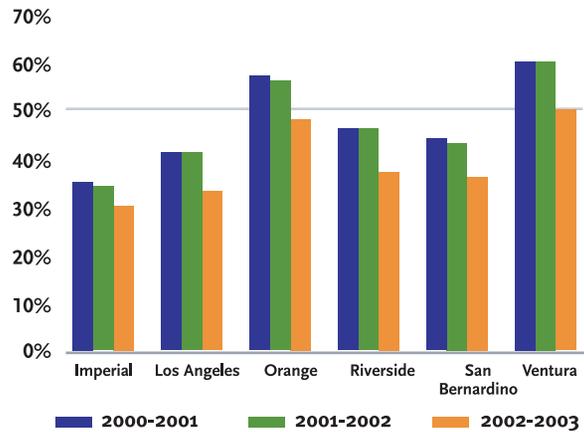


\* Performed better than the nation if more than 50% students were above the national median score.

Source: California Department of Education



**Figure 61**  
**Reading Test Scores for 8th Grade**  
 (Percent above National Median Score)\*



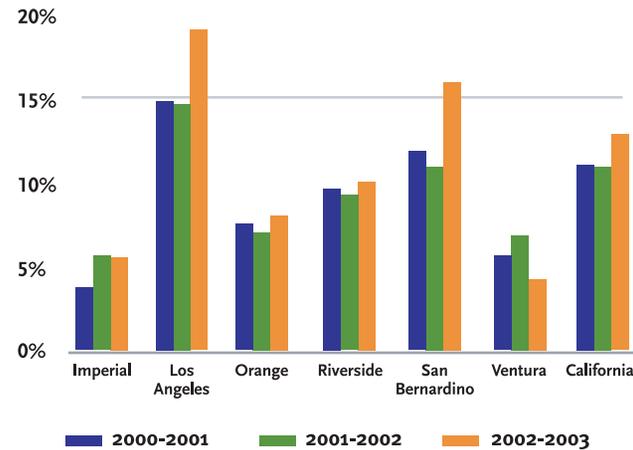
\* Performed better than the nation if more than 50% students were above the national median score.

Source: California Department of Education

Between 2002 and 2003, dropout rates for high schools increased significantly in Los Angeles and San Bernardino counties. The dropout rate also increased at the state level to a lesser extent. It should be noted that in the 2002-2003 school year, the California Department of Education started using the National Center for Education Statistics dropout rate criteria. Within the region, only Ventura County experienced a noticeable reduction. (Figure 62).

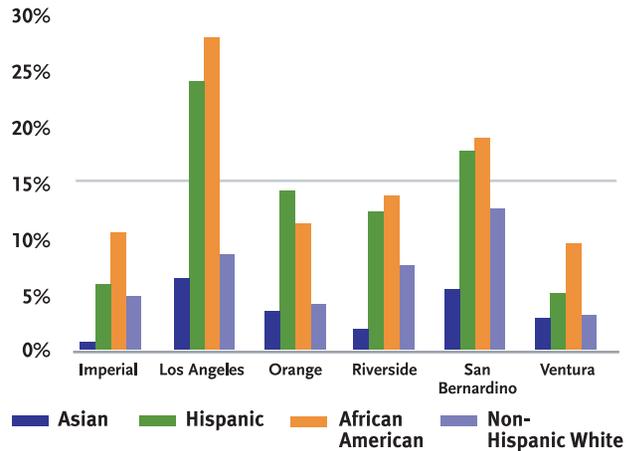
African American and Hispanic high school students in the region, when compared with their White and Asian peers, had significantly higher dropout rates (Figure 63). For example, the dropout rate for African American students in Los Angeles County reached almost 28 percent in 2003 compared with 6 percent for Asian students. African American high school students had the highest dropout rate throughout the region except Orange County. This is contrary to the national trend in which Hispanic students had the highest dropout rate. Asian students generally had the lowest dropout rates. The disparity is much more pronounced in Los Angeles County than in the other counties.

**Figure 62**  
**Dropout Rates in Public High Schools**



Source: California Department of Education

**Figure 63**  
Dropout Rates by Race/Ethnicity in  
Public High Schools, 2002-2003

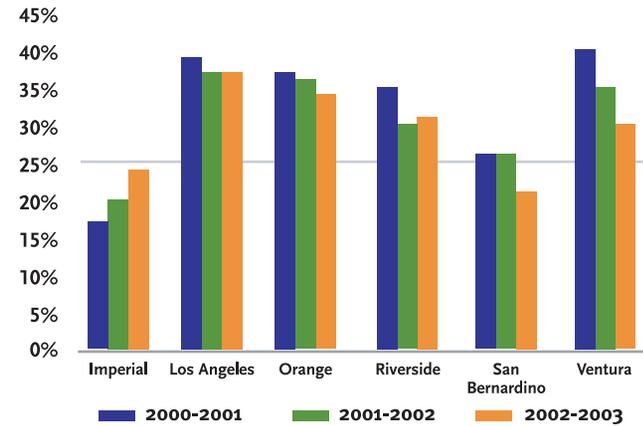


Source: California Department of Education

As to the percentage of high school graduates completing courses required for University of California (UC) or California State University (CSU) entrance, while Imperial County made noticeable progress, both Ventura and San Bernardino counties experienced lower performance in 2003. In 2003, every county in the region had less than 40 percent of high school graduates complete courses required for UC or CSU entrance (Figure 64).

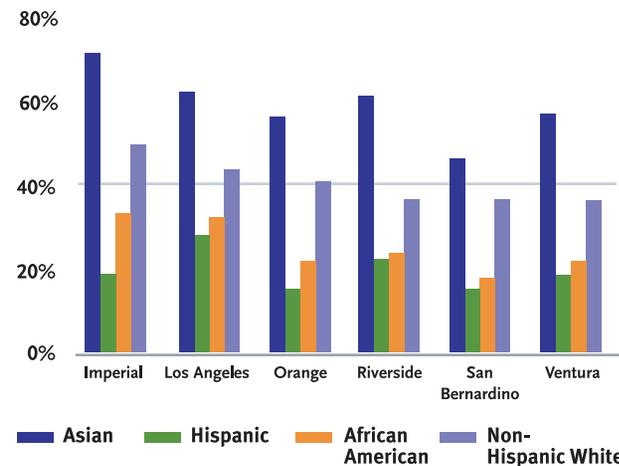
There were also similar patterns of racial and ethnic disparities across the six counties in the region (Figure 65). For example, while more than 60 percent of Asian graduates in Riverside County completed courses required for UC or CSU entrance, only 22 percent of the Hispanic students achieved the same.

**Figure 64**  
High School Graduates Completing Courses  
Required for UC or CSU Entrance



Source: California Department of Education

**Figure 65**  
High School Graduates Completing Courses  
Required for UC or CSU Entrance by Race/Ethnicity  
(2002-2003)



Source: California Department of Education

The SCAG region lost ground in educational attainment during the 1990s. Among the nine largest metropolitan regions in the nation, Southern California was the only one that did not make any progress in educational attainment, specifically with respect to the proportion of population 25 years and over who earned at least a high school diploma.<sup>1</sup>

*In 2003, there were slight improvements regarding educational attainment in the region following the trend at the national level. Among the nine largest metropolitan regions, the SCAG region remained in last place in the percentage of adults (76 percent) with at least a high school diploma, and 2nd to last for at least a Bachelor's degree (27 percent).<sup>2</sup>*

## Public Safety

### WHY IS THIS IMPORTANT?

Crime-related activities consume an enormous amount of valuable social and economic resources. The social costs are real, though less quantifiable, including pain and suffering of crime victims and their families and weakening of community cohesion. The economic costs include loss of productivity due to death or disability resulting from crime, medical costs, and loss of property values in neighborhoods with high crime rates.



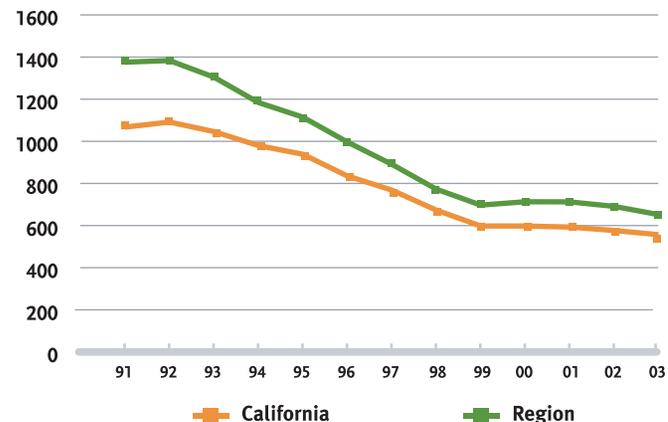
## HOW ARE WE DOING?

### VIOLENT CRIMES

*In 2003, the violent crime rate in the region declined by almost 6 percent from 2002, larger than the 3 percent reduction during the previous period. At the state level, violent crime rate declined by about 3 percent between 2002 and 2003. However, the region continued to have a higher violent crime rate than the state as a whole (Figure 66). Violent crime rates in both the region and the state peaked in 1992 and have been declining since then, except for a slight increase in 2000.*

Violent crimes include four types: homicides, forcible rapes, robberies and aggressive assaults. In 2003, among the 114,962 violent crime incidents, 71,540 (or 62 percent) were aggravated assaults, 37,727 (33 percent) were robberies, 4,267 were forcible rapes (3.7 percent) and 1,428 (1.3 percent) were homicides. *From 2002 to 2003, both the total numbers as well as crime rates declined across all four types of violent crimes.*

**Figure 66**  
**Violent Crimes**  
(Per 100,000 Population)

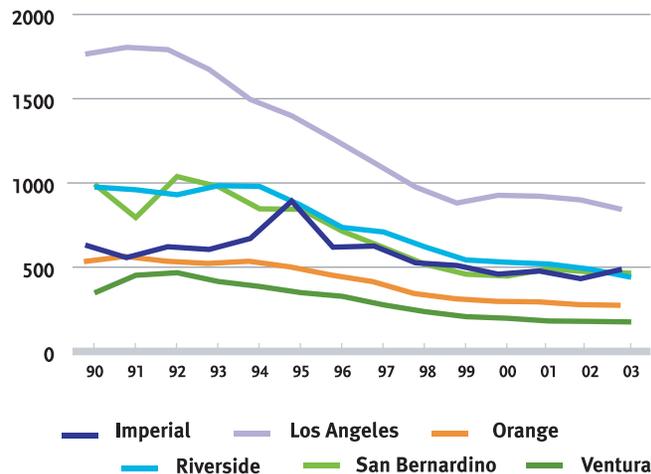


Source: California Department of Justice

Within the region, reduction of the violent crime rate in 2003 was most significant in Riverside County (-8.6 percent) and Los Angeles County (-6.3 percent). Imperial County was the only county in the region experiencing higher violent crime rate in 2003, mainly due to the increase of aggravated assaults. About three-quarters of the violent crimes took place in Los Angeles County. Orange and Ventura counties consistently had the lowest rates in violent crimes in the region (Figure 67).

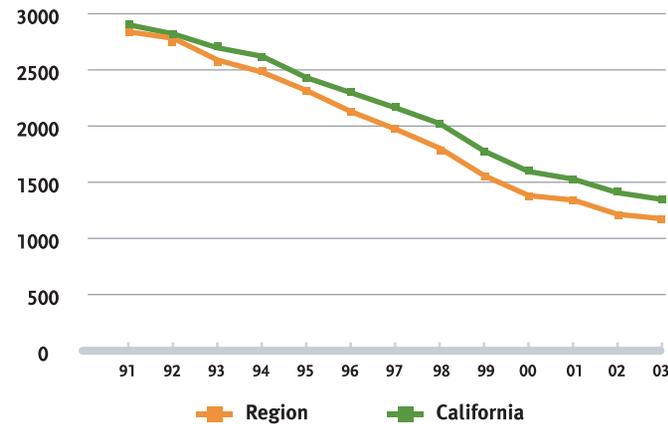
Between 2002 and 2003, the total number of homicides in the region decreased from 1,515 to 1,428. This mainly resulted from improvements in Los Angeles and Orange counties. Nevertheless, in 2003, Los Angeles County still accounted for almost three-quarters of the total homicides in the region.

**Figure 67**  
**Violent Crimes by County**  
(Per 100,000 Population)



Source: California Department of Justice

**Figure 68**  
**Juvenile Felony Arrests**  
(Per 100,000 Population Aged 10-17)

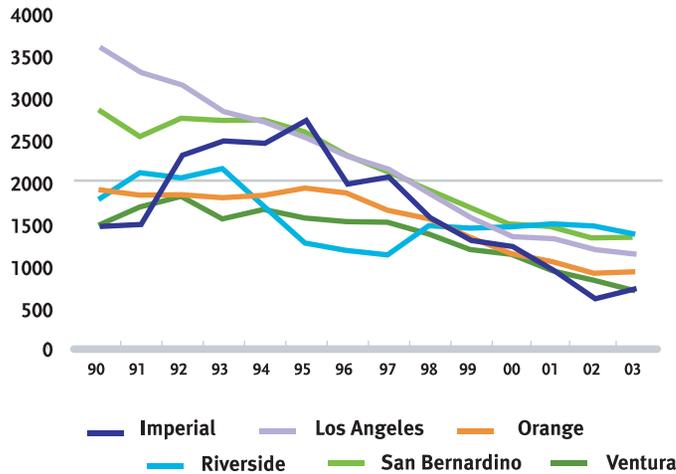


Source: California Department of Justice

## JUVENILE FELONY ARRESTS

A felony offense is defined as a crime that is punishable by death or imprisonment. Juvenile felony arrest rates for those aged 10 to 17 have continuously declined in the region since 1990. From 2002 to 2003, there were reductions of about 3 percent in juvenile arrest rate in the region, comparable to the 4 percent decrease at the state level (Figure 68). Improvement was most significant in Ventura County with a 14 percent reduction between 2002 and 2003 after an 11 percent decrease in the previous period. Both Riverside and San Bernardino counties had much higher juvenile felony arrest rates than Los Angeles in 2003, reversing circumstances of a decade ago in which they had much lower rates than Los Angeles County (Figure 69).

**Figure 69**  
**Juvenile Felony Arrests by County**  
 (Per 100,000 Population Aged 10-17)



Source: California Department of Justice

In 2002, the region had about 26,700 juvenile felony arrests. Among them, about 5,700 arrests (or 21 percent) were due to burglary, close to 5,000 arrests (19 percent) due to theft (including motor vehicles) and another 4,600 arrests (or 17 percent) due to assault. In addition, more than 2,700 arrests (or 10 percent) were for drug law violation. More than three quarters of the total juvenile arrests were males.

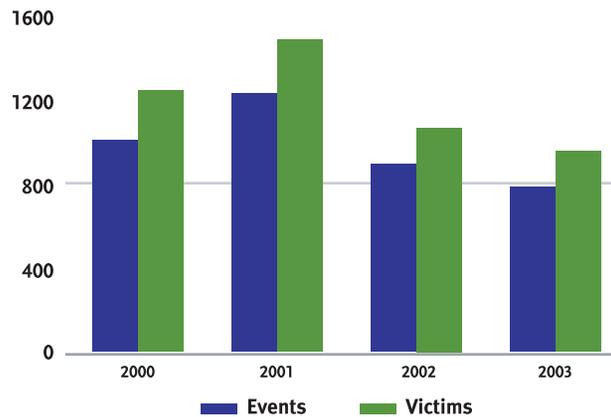
In Orange and Ventura counties, juvenile felony arrests for burglary accounted for 26 percent of their total arrests, significantly higher than the regional average of 21 percent. On the other hand, juvenile felony arrests for violent offenses (including homicide, forcible rape, robbery and assault) in these two counties accounted for only 20 percent of their total arrests, significantly lower than the regional average of 27 percent.

## HATE CRIMES

The number of hate crime events and victims in the region declined by about 12 percent between 2002 and 2003, following an almost 30 percent reduction during the previous period. Hate crimes could be in the form of violent crimes (70 percent) or property crimes (30 percent).<sup>3</sup> As to the motivations for hate crimes in 2003, statewide data indicated that more than 60 percent of the events were due to race/ethnicity bias followed by about 23 percent for sexual orientation bias and 15 percent for religious bias. Close to 60 percent of the hate crimes events took place on the highways/streets or around residence/home.

The year 2001 was the peak year in hate crimes in the last five years due primarily to the September 11 terrorist attacks (Figure 70). For four consecutive years, more than 70 percent of the hate crime events and victims were in Los Angeles County.

**Figure 70**  
**Hate Crime Activities**



Source: California Department of Justice

# Metropolitan Regions



# 2004

Among the largest metropolitan regions, the SCAG region experienced higher than average growth in population and jobs but ranked last in per capita income.

# Metropolitan Regions

In order to fully assess the progress of Southern California, it is useful to compare the performance of the SCAG region with other large metropolitan regions in the nation.

Currently, there are nine metropolitan regions in the nation with more than 5 million residents (Figure 71). They are also designated by the U.S. Census Bureau as Consolidated Metropolitan Statistical Areas (CMSAs). Four are located in the Northeast (New York, Washington, DC, Philadelphia and Boston), two in the Midwest (Chicago and Detroit), one in the South (Dallas) and two in the West (SCAG region and San Francisco Bay Area). In 2003, only two had population exceeding 10 million, the New York region (21.5 million) and

the SCAG region (17.4 million). The other regions had population between 5 and 10 million. Total population in the nine largest metropolitan regions exceeded 87 million in 2003, about 30 percent of the nation's population.

## Socio-Economic Indicators

### POPULATION GROWTH

Between 2000 and 2003, among the nine largest metropolitan regions, the SCAG region achieved the largest population increase of approximately 900,000 people. Southern California also experienced the 3rd highest growth rate (5.4 percent) following Dallas (8.2 percent) and Boston (5.8 percent).

Figure 71  
Population by Metropolitan Region (000)

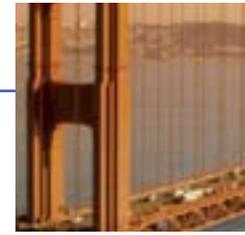
Rank	Metropolitan Region Name	Population		Population Increase	
		2000	2003	2000-2003 Number	% Change
1	New York – Northern New Jersey – Long Island, NY – NJ – CT – PA CMSA	21,199.9	21,507.0	307.4	1.5%
2	<b>SCAG Region*</b>	16,516.0	17,411.9	896.0	5.4%
3	Chicago – Gary – Kenosha, IL – IN – WI CMSA	9,157.5	9,393.7	236.1	2.6%
4	Washington – Baltimore, DC – MD – VA – WV CMSA	7,608.0	7,985.5	377.4	5.0%
5	San Francisco – Oakland – San Jose, CA CMSA	7,039.4	7,098.0	58.7	0.8%
6	Philadelphia – Wilmington – Atlantic City, PA – NJ – DE – MD CMSA	6,188.5	6,287.5	99.0	1.6%
7	Boston – Worcester – Lawrence, MA – NH – ME – CT CMSA	5,819.1	6,158.3	339.2	5.8%
8	Dallas – Fort Worth, TX CMSA	5,221.8	5,652.1	430.3	8.2%
9	Detroit – Ann Arbor – Flint, MI CMSA	5,456.5	5,516.1	59.7	1.1%
<b>Total</b>		<b>84,206.6</b>	<b>87,010.4</b>	<b>2,803.8</b>	<b>3.3%</b>

\*The SCAG region includes Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties.

With the exception of Imperial, the other five counties belong to the Los Angeles-Riverside-Orange Consolidated Metropolitan Statistical Area (CMSA).

\*\* For specific counties included in each CMSA above, please see the Statistical Abstract of the United States: 2003.

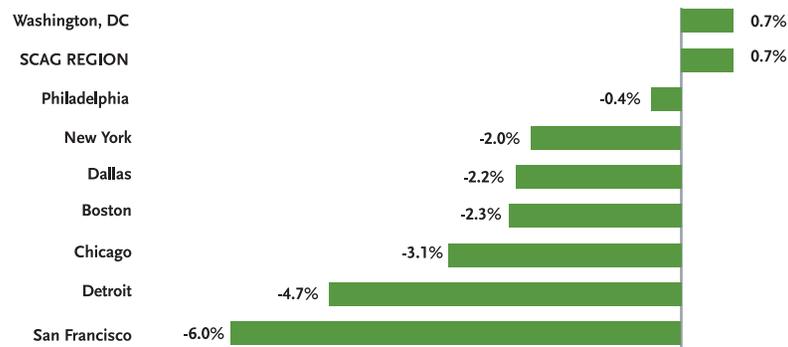
Source: Data in 2000 is based on the 2000 Census, and data in 2003 is based on the Census July 1, 2003 estimates.



## EMPLOYMENT GROWTH

Between 2000 and 2002, the SCAG and the Washington, DC regions were the only two regions achieving job growth among the nine largest metropolitan regions in the nation. During this period, the San Francisco Bay Area lost close to a quarter million jobs (or 6 percent). In addition, the New York region, significantly impacted by the September 11 terrorist attack, also lost more than 200,000 jobs (or 2 percent) during the two-year period.

**Figure 72**  
**Total Payroll Jobs by Metropolitan Region**  
**(Percent Change During 2000 - 2002)**

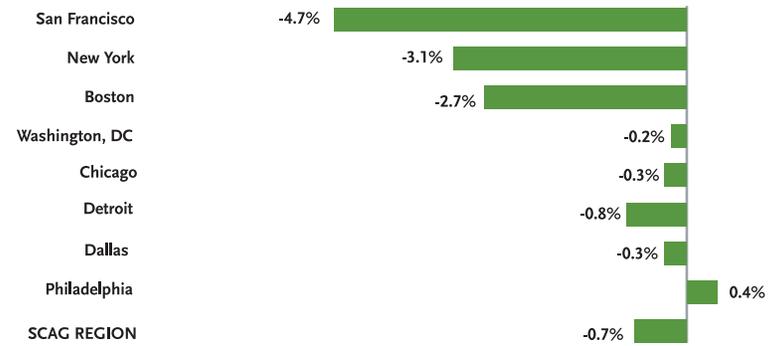


Source: U.S. Bureau of Economic Analysis

## AVERAGE PAYROLL PER JOB

In 2002 (the most current data available), the average payroll per job in the region decreased slightly by 0.7 percent from 2001 after adjusting for inflation. Among the nine largest metropolitan regions in the nation, the SCAG region ranked 5th in the percentage change of average payroll per job from 2001 to 2002. In 2002, the San Francisco Bay Area suffered a sharp decline of 4.7 percent in its average payroll per job, following a 8.6 percent decline in the previous year.

**Figure 73**  
**Average Payroll Per Job by Metropolitan Region**  
**(Percent Change during 2001-2002)\***



\*With inflation adjustment based on the U.S. Bureau of Labor Statistics  
 Source: U.S. Bureau of Economic Analysis

In 2002, the SCAG region ranked last in average payroll per job at about \$39,500 among the nine largest metropolitan regions. Despite the 13 percent decline in average payroll per job from 2000 to 2002, the San Francisco Bay Area continued to have the highest average payroll per job at \$51,730 followed by New York. It is interesting to note that the nine regions fall into three tiers as to their average payroll per job. The first tier includes the San Francisco Bay Area and New York regions with average payrolls per job at approximately \$50,000 or above. The second tier includes Boston and Washington, DC regions with average payrolls per job at approximately \$45,000. The third tier includes Chicago, Detroit, Dallas, Philadelphia and the SCAG region with average payrolls per job at approximately \$40,000.

**Figure 74**  
Average Payroll Per Job by Metropolitan Region, 2002



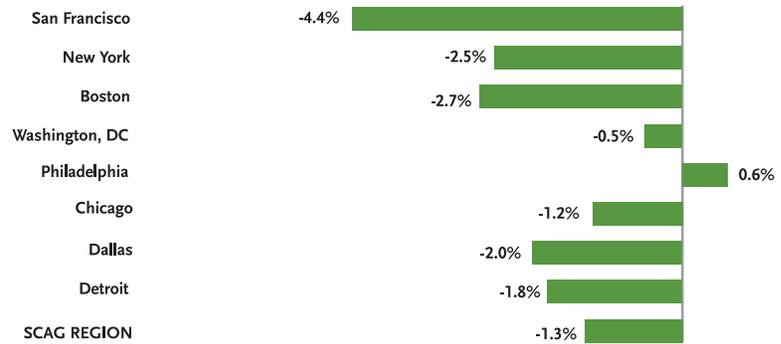
Source: U.S. Bureau of Economic Analysis

## INCOME

In 2002 (the most current data available), per capita personal income in the region decreased slightly by 1.3 percent from 2001 after adjusting for inflation. The San Francisco Bay Area suffered a sharp decline of 4.4 percent in its per capita personal income. Changes in per capita income generally followed the pattern of changes in average payroll per job.

Data on per capita personal income in 2003 are still not available and are scheduled to be released in May 2005 by the U.S. Bureau of Economic Analysis. However, estimates made by university researchers indicate that the region's per capita income would show little change from its 2002 level.

**Figure 75**  
Per Capita Personal Income by Metropolitan Region  
(Percent Change during 2001-2002)\*



\*With inflation adjustment based on the U.S. Bureau of Labor Statistics

Source: U.S. Bureau of Economic Analysis

Among the 17 largest metropolitan regions in the nation, the SCAG region ranked last in terms of per capita income in 2002 and is expected to remain there in 2003 (after dropping from the 4th highest in 1970 to 7th highest in 1990, to 16th place in 2000). In 2002, the Miami region overtook the SCAG region in per capita income ranking primarily because of the inclusion of the wealthier Palm Beach County.

**Figure 76**  
Per Capita Income by Metropolitan Region, 2002

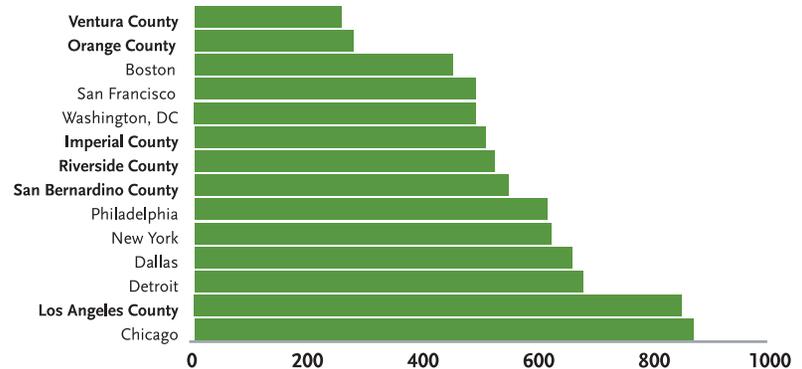


Source: U.S. Bureau of Economic Analysis

## CRIME

Violent crime rates in Los Angeles County, though reduced by a half since 1990, were the second highest in large metropolitan areas in the nation following Chicago. Orange and Ventura counties had substantially lower violent crime rates than most large metropolitan areas.

**Figure 77**  
Violent Crimes by Metropolitan Area, 2003  
(Per 100,000 Population)



\*Based on Metropolitan Statistical Area unless noted otherwise. Chicago data is based on Cook County data.

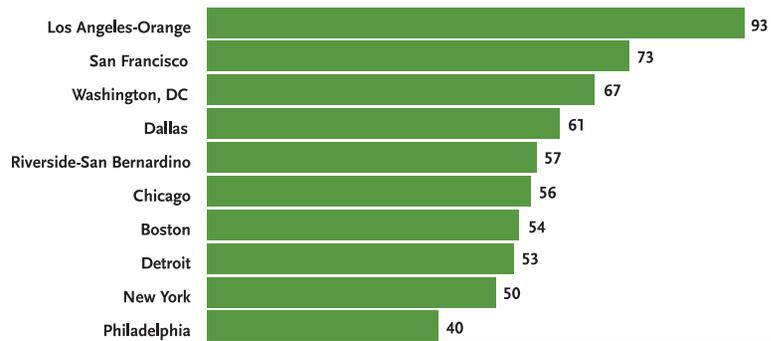
Source: FBI 2003 Uniform Crime Report; Illinois State Police 2003 Uniform Crime Report

## Transportation

### HIGHWAY CONGESTION

In 2002, people traveling on the roadways in Los Angeles /Orange counties experienced a total of 93 hours of delay per person, the highest among the metropolitan areas in the nation. Nevertheless, between 1992 and 2002, annual delay per person stayed almost unchanged in Los Angeles/Orange

**Figure 78**  
**Annual Hours of Delay per Traveler by Metropolitan Area, 2002**

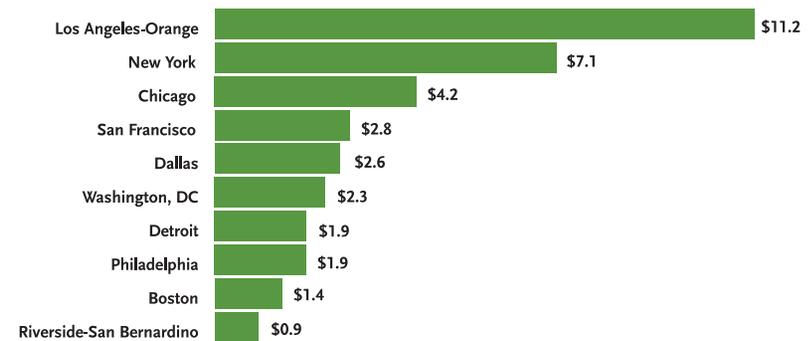


Source: Texas Transportation Institute

counties while increasing significantly in other large metropolitan areas. In the Inland Empire, travelers experienced a total of 57 hours of delay per person in 2002, the fifth highest among the metropolitan areas in the nation.

In 2002, total cost incurred due to congestion in the SCAG region was more than \$12 billion, significantly higher than any other metropolitan area in the nation.

**Figure 79**  
**Total Congestion Cost by Metropolitan Region, 2002 (Billion Dollars)**



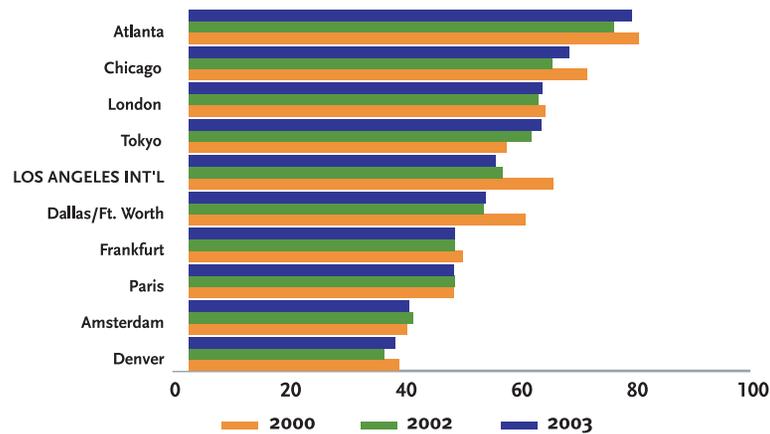
\*Includes the costs from delay as well as additional fuels used.

Source: Texas Transportation Institute

## AIRPORTS

In 2003, among the ten largest airports in the world, LAX ranked 5th in passenger traffic behind Atlanta, Chicago, London and Tokyo. Between 2000 and 2002, all the largest U.S. airports were negatively impacted by the September 11, 2001 terrorist attack and the national recession as reflected in the declines of their total annual passengers. During this period, LAX was impacted the most with its ranking dropping

**Figure 80**  
**Top 10 Passenger Airports in the World**  
 (Total Passengers in Millions)

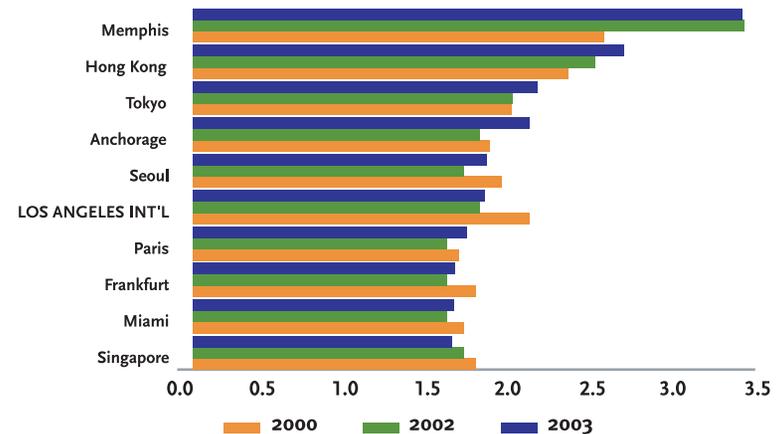


Source: Airports Council International

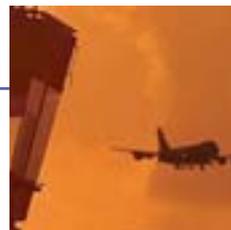
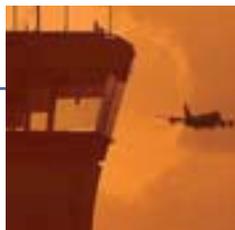
from the 3rd place in 2000 to 5th place in 2002. In 2003, all the largest U.S. airports experienced some recovery with the exception of LAX.

LAX was the 6th largest international cargo airport in 2003. In 2000, LAX ranked 3rd and has since been overtaken by Tokyo, Anchorage and Seoul in total cargo volume.

**Figure 81**  
**Top 10 Cargo Airports in the World**  
 (Cargo Volumes in Million Metric Tons)



Source: Airports Council International



# ENDNOTES

## EXECUTIVE SUMMARY

1. Data on per capita personal income in 2003, scheduled for release in May 2005 by the U.S. Bureau of Economic Analysis, were not available when completing this State of the Region Report in December 2004. However, both estimates made by researchers at California State University, Long Beach and Fullerton indicated that the region's total personal income would increase by only approximately 3.7 percent between 2002 and 2003. After adjusting for the population growth rate and the inflation rate in 2003, the region's real personal income per capita was almost unchanged between 2002 and 2003. Please see *Regional Economic Forecast for Southern California, 2005-2006*, published by the Southern California Association of Governments.

## POPULATION

1. In addition to domestic migration, the other two components contributing to population growth are natural increases (births over deaths) and net foreign immigration. Between 1990 and 2003, natural increases and net foreign immigration had much smaller year-to-year variations than domestic migration. Hence, the variations in domestic migration largely determined the fluctuation of annual population growth in the region.
2. Public Policy Institute of California, California Department of Finance, and "California Cuts Its Population Projection" in Los Angeles Times, October 4, 2004.

3. *Migration and Its Effects*, prepared by Simon Choi, June, 2004, Southern California Association of Governments.

## THE ECONOMY

1. U.S. Bureau of Economic Analysis. *Regional Economic Information System*.
2. Data on employment by sector discussed in this section are based on the Labor Market Information published by the California Employment Development Department.
3. A structural budget deficit exists when revenues raised by the state's taxes and other revenue sources are not sufficient to fund service levels under existing law adjusted for population growth and inflation.
4. Real Estate Research Council of Southern California, *Real Estate and Construction Report*, 4th Quarter, 2003.
5. Center for the Continuous Study of the California Economy, *California Economic Growth, 2004 Edition*, p. 8-8.
6. The 2003 average payroll per job information is based on the third quarter data from the *Quarter Census of Employment*, California Employment Development Department.
7. John E. Husing. 2004. *Logistics and Distribution: Answer to Regional Upward Mobility*.
8. See endnote 1 under Executive Summary.
9. U.S. Census Bureau. 2003. *Income, Poverty and Health Insurance Coverage in the United State*.

10. Southern California Association of Governments. *The State of the Region 2002*, p. 26, Figure 26, available: <http://www.scag.ca.gov/publications/>.
11. U.S. Census Bureau. 1980, 1990 and 2000 Census.
12. U.S. Census Bureau. 2003. *Income, Poverty and Health Insurance Coverage in the United State*.
13. Ibid.
14. U.S. Census Bureau, *American Community Survey, 2000 and 2003*.
15. All taxable sales data in this section are from the California State Board of Equalization.
16. Data on direct international trade employment are from the *International Trade Trends and Impacts, the Los Angeles Region*, published by the Los Angeles Economic Development Corporation in 2004. Direct international trade employment includes activities related to moving commodities in and out of the customs district and does not include any manufacturing activities.
17. Los Angeles Economic Development Corporation. 2004. *International Trade Trends and Impacts, the Los Angeles Region*.

## HOUSING

1. California Department of Finance.
2. U.S. Census Bureau.
3. Ibid.

4. Southern California Association of Governments. *The State of the Region 2002*, p. 39, Figure 39.

## TRANSPORTATION

1. California Department of Transportation. *2003 Assembly of Statistical Reports*.
2. Southern California Association of Governments. *The State of the Region 2002*, p. 44, Figure 41, available: <http://www.scag.ca.gov/publications/>.
3. Southern California Association of Governments. *The State of the Region 2003*, p. 106, Figure 37a.
4. Southern California Association of Governments. 2003. *Draft RTP EIR*, p.3.3-9.
5. Southern California Association of Governments. 2003. *Year 2000 Post-Census Regional Travel Survey: Final Report of Survey Results*, p.10.
6. Ibid, p. 4.
7. U.S. Bureau of Transportation Statistics. *Transportation Statistics Annual Report 2001*, p. 139.
8. U.S. Bureau of Transportation Statistics. *National Transportation Statistics 2002*. p.148.
9. Southern California Association of Governments. 2003. *Year 2000 Post-Census Regional Travel Survey: Final Report of Survey Results*, pp. 31-32.
10. Southern California Association of Governments. 2003. *Draft RTP EIR* p.3.3-1.

11. U.S. Census Bureau, *American Community Survey, 2000 and 2003*.
12. U.S. Census Bureau.
13. Southern California Association of Governments. 2004. *Destination 2030*, p. 138.
14. U.S. Census Bureau.
15. Los Angeles Economic Development Corporation, 2004. *International Trade Trends and Impacts, the Los Angeles Region*, p.4.
16. John E. Husing. 2004. *Logistics and Distribution: Answer to Regional Upward Mobility*.

## THE ENVIRONMENT

1. Southern California Association of Governments. 2003. *Draft RTP EIR*, p. 3.4-1.
2. California Environmental Protection Agency and Resources Agency. 2002. *Environmental Protection Indicators for California*, p.33
3. South Coast Air Quality Management District.
4. Ibid.
5. Ibid. On July 11, 2003, a Stage 1 alert occurred at the Rim of the World monitoring site, which is a special purpose monitoring site. It is not part of the official data used for regulatory purposes.

6. Ibid.
7. California Air Resources Board.
8. South Coast Air Quality Management District.
9. SCAG staff estimates based on various water management plans in the region.
10. All beach closure data in this section are based on *Testing the Waters: A Guide to Water Quality at Vacation Beaches*, published by the Natural Resources Defense Council, 2004.
11. California Integrated Waste Management Board, available: <http://www.ciwmb.ca.gov/Landfills/tonnage/> The CIWMB obtains disposal information from returns filed with the California State Board of Equalization by disposal facility (landfill) operators. The figures reflect the amount of waste that is landfilled, or disposed of, in the SCAG region, as reported by each facility operator, rather than the total amount of waste generated in the region.
12. Elizabeth Grossman, *Problems and Possibility in Managing Electronic Waste*, Orion Magazine, July/August 2004.

## QUALITY OF LIFE

1. Southern California Association of Governments. *The State of the Region 2002*, p. 76, Figures 71 and 72, available: <http://www.scag.ca.gov/publications/>.
2. U.S. Census Bureau, 2003 *American Community Survey*.
3. California Department of Justice, *Hate Crimes in California, 2003*.

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*The Thomas Brothers Network was used in SCAG maps.*

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  75. Per Capita Personal Income by Metropolitan Region (Percent Change during 2001-2002)
  76. Per Capita Personal Income by Metropolitan Region, 2002
  77. Violent Crimes by Metropolitan Area, 2003 (per 100,000 Population)
  78. Annual Hours of Delay per Person by Metropolitan Area
  79. Total Congestion Cost by Metropolitan Area
  80. Top Ten Passenger Airports in the World, 2003 (Passengers)
  81. Top Ten Cargo Airports in the World, 2003 (Cargo Volume in Metric Tons)

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# Mission Statement

Leadership

Vision

Progress

Leadership, vision and progress which promote economic growth, personal well-being, and livable communities for all Southern Californians.

The Association will accomplish this Mission by:

- Developing long-range regional plans and strategies that provide for efficient movement of people, goods and information; enhance economic growth and international trade; and improve the environment and quality of life.
- Providing quality information services and analysis for the region.
- Using an inclusive decision-making process that resolves conflicts and encourages trust.
- Creating an educational and work environment that cultivates creativity, initiative, and opportunity.

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